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ABSTRACT

This document, the second of three volumes concerned with the role of institutions of higher education in the development of countries in South-East Asia, presents country profiles for Burma, Thailand, Laos, Cambodia, Viet-Nam, Malaysia, Singapore, Indonesia, and the Philippines. The profile emphasizes background, higher education, educational development objectives and finance. The section on background covers land and people, the socio-economic situation, and the educational system. The section on higher education emphasizes structure, organization and administration, enrollment and graduation trends, the position in the main fields of study, students staffing, extension work, and study abroad. The educational development objectives and finance section discusses plan objectives for educational development and financing educational development. Statistical data are included. Related documents are HE 004 650, HE 004 652, and HE 004 673. (MJM)

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by Howard Hayden

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in South-East Asia

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Preface

The Study of the Role of Institutions of Higher Education in the Development of Countries in South-East Asia is the second project to be carried out under the Joint Unesco-International Association of Universities Research Programme in Higher Education. This programme, which constitutes a novel form of co-operation between an intergovernmental organization and an international academic body, was brought into being at the end of 1959. Directed by a Joint Steering Committee, its purpose is to carry out under the auspices of the two organizations, with the financial support of private foundations or such other private or public bodies as may be appropriate, a series of studies of important problems affecting the organization, operation and functions of institutions of higher education in the present world.

This study was set up with the co-operation and support of the Ford Foundation which generously authorized grants in the amount of $534,000 for its conduct. Work began in September 1961 and from then until April 1965 extensive inquiries were made into the actual and potential contribution of higher education in the countries of South-East Asia to the achievement of the goals of social and cultural development as well as its role in providing the knowledge and skills needed for their economic progress. The *Director's Report* of the study was published in 1966 and the present volume comprises a series of detailed country profiles. A third volume, in two parts, will contain the reports of consultants to the study, one by Mr. Guy Hunter entitled *High Level Manpower for Development*, and the other by Mr. Richard Noss entitled *Language Policy and Higher Education in South-East Asia.*

The Joint Steering Committee is indebted to all those who helped to carry out this important undertaking and most specially to the chairman of its Commission of Experts, Sir John Lockwood, Master of Birkbeck College in the University of London and former Vice-Chancellor of the University, who died suddenly on 11 July 1965. Despite other heavy commitments in the United Kingdom and Africa, he had for four years contributed selflessly to the study, traveling extensively in the region, and bringing to the planning and evaluation of the inquiries which were carried out the stimulus of the keen mind of a distinguished scholar and gifted administrator. On behalf of all who were associated with the study we here pay tribute to Sir John for his devotion to the cause of higher education and for the warm generosity of his companionship.

The Committee's thanks are also due to the members of the International Commission of Experts, individually and collectively, for the advice and guidance they gave throughout the study as well as to the consultants for the specialized knowledge and experience they brought to bear on important parts of the undertaking.

The main burden of the work was inevitably borne by the directors of the study and its small staff in Kuala Lumpur, and the Committee is grateful to them for their devotion to a difficult and onerous task. Three directors each made a distinctive contribution to its accomplishment: Dr. Matta Akrawi served from September 1961 to December 1962 and was responsible, with Sir John Lockwood, for the initiation of the study and the successful conclusion of its first phase; Dr. R. M. Sundrum brought to the work the special skills of a political economist and statistician until March 1964; from then on the work went forward under the direction of Mr. Howard Hayden—a comparative educationist, he was responsible for making a synthetic analysis of the complex body of material assembled by the study.

Finally, the Committee wishes to express its appreciation to the Government of Malaysia and to the University of Malaya for the special facilities afforded to the study in Kuala Lumpur and to thank them as well as the governments and university institutions of the other South-East Asian countries associated with the study for their co-operation and assistance.

CONSTANTINE K. ZURAYK,
President, IAU

RENÉ MAHEU,
Director-General, Unesco

Co-Chairmen, Unesco-IAU Joint Steering Committee

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Introduction

The study on 'The Role of Institutions of Higher Education in the Development of Countries in South-East Asia' is the second of a number of research programmes in higher education being conducted jointly by Unesco and the International Association of Universities. It has been made possible by the collaboration of the Ford Foundation, and has been carried out by a Director and Assistant Director, with a small administrative and clerical staff, working from a research office made available by the University of Malaya at Kuala Lumpur in Malaysia.

The published work of the study has emerged in a *Director's Report* (Volume I), a series of *Country Profiles* (the present volume) and two monographs by consultants to the study, one on *High-level Manpower for Development* by Mr. Guy Hunter of the Institute of Race Relations, the other on *Language Policy and Higher Education in South-East Asia* by Mr. Richard B. Noss, scientific linguist with the School of Languages and Area Studies of the Foreign Services Institute, Department of State, Washington.

A summary of the report condensed to approximately one-tenth of its length and including the conclusions of the Commission was published by the joint sponsors in August 1965. This summary was made available to the Fourth General Conference of the International Association of Universities held in Tokyo in September 1965, and to the Conference of Ministers of Education and Ministers responsible for Economic Planning of Member States in Asia, held in Bangkok in November 1965.

The general conspectus of the region offered by the *Director's Report* was based upon a comparative examination of the circumstances of each of the constituent countries—in particular of their economic problems and their educational systems—and it has seemed useful to reassemble this material, much of which had to be omitted from a regional presentation, in a series of *Country Profiles*, which it is hoped may be either read with the report or turned to as a fuller reference when details have been omitted in the wider study.

The term 'profile' has been deliberately adopted to indicate that these studies are not full-length portraits: they attempt no more than an outline sketch of the sitter—the provision of higher education, related to the whole educational system, and viewed from the angle of the problems of economic and social development.

Appendix II of the *Director's Report* concludes with a note on the proposed pattern of the profiles, to test the adequacy of which a first draft of the profile of Thailand was drawn up in April 1964, for discussion by the International Commission of Experts.

The pattern then developed, and subsequently used as a framework for all the profiles, first outlined a geographic, ethnic and demographic background, filled in the major economic problems in so far as they had implications for education either of a specific or a general nature, and summarized plans to deal with them. Next followed a description of the educational system of the country, with some qualitative indicators leading to the construction of an educational pyramid.

Higher education was then examined in considerable detail—its structure and organization, its growth and present institutions, and its outputs in the main fields of arts and the social sciences; science and engineering; medicine and the medical sciences; agriculture and veterinary science; and education and teacher training. A description was also included of students, their origin, welfare and problems; the position of staffing; extra-mural activities; and students abroad.

The prototype profile then concluded with an examination of the relevance and potential of the system of higher education in relation to economic development plans, and the impact of these plans upon educational planning and finance.

It will be found that this system has been generally followed in principle in all the profiles, but that the pattern has not been rigidly adhered to, since the prominence of different features varied considerably from profile to profile.

Thus it was scarcely necessary in the Thai or Philippine profiles to deal at any length with the political aspects of development and nationalism. On the other hand, the growth of Malaysia and the separation of Singapore to become an independent State are elements in a historical development of considerable complexity which has had an overwhelming influence on the development of educational patterns. Thus the reason why the University of Malaya is to be found at one time in Singapore, at another time in Kuala Lumpur, and at yet another time in both Singapore and in Kuala Lumpur needs some explanation. In the same way it is impracticable to assess the future development of education in Viet-Nam in terms of the present circumstances and the ensuing artificial economic situation.

Again, the influence of a single university—the University of Malaya for example—prompts a more detailed examination of one institution than would be the case in, for example, Thailand where the concentration in Bangkok of a complex of institutions of higher education is not to be found in any Malaysian city.

Considerable attention has been given to secondary education in all the profiles, since this is the foundation on which higher education is built, but again the emphasis varies. The Malaysian experiment in 'comprehensive education' for example receives a much fuller treatment than the more conventional pattern to be found in Viet-Nam or Burma.

It will be evident that the width of coverage and reliability of data the study has been able to amass has varied greatly from country to country (a note on statistics in the profile of Malaysia (p. 326) illustrates this point), and the profiles themselves will show where it has been possible to write from first-hand experience and where it has been necessary to rely upon documentary sources.

It had originally been intended to provide bibliographical appendixes in the form both of a general bibliography and specialized country bibliographies. This has not proved practicable. Much of the general information —political, social, economic and geographic—has been pieced together from a wide variety of general sources, reference to which might prove misleading in a search for specific detail. Statistics, on the other hand, have been obtained largely from unpublished material obtained from Ministries of Education, universities and other institutions or from official or semi-official sources including a great deal of material supplied for working papers for various seminars and conferences: much of this material is not publicly available. Further, the study has been limited both by time, accessibility and problems of language from exploring in depth many significant sources which should properly appear in adequate bibliographies. It therefore seemed preferable to limit such information to sources actually quoted or heavily drawn upon: these are given bibliographical reference in footnotes to the text.

There is a great deal of bibliographical information on the region reasonably available, in particular *The Asian Bibliography* published by ECAFE in Bangkok and the material to be found in the select and accession lists of such institutions as the Ramon Magsaysay Award Foundation Asian Library in Manila and the *South-East Asia Accessions List* of the Wason Collection of Cornell University Library, Ithaca, New York. The accessions list published quarterly by the Unesco Regional Education Office in Bangkok is devoted largely to a collection of educational publications, but the only national educational bibliography which has come to the notice of the study is a bibliography of *Education in Malaysia* (second edition) compiled by Mrs. Wang Chen Hsiu Chin, Deputy University Librarian, University of Singapore.

Two aspects of education are touched upon but lightly in the profiles: the projection of school and university populations, and the cost of education and its development.

These fields were explored in very considerable detail during the preparation of working papers for the Conference of Ministers of Education and Ministers responsible for Economic Planning of Member States in Asia (Bangkok, November 1965), organized jointly by Unesco and ECAFE. Two itinerant groups of educational planners, the Unesco Regional Advisory Teams (URAT), prepared forecasts of enrolment and ensuing costs up to 1980 for all Member States of Unesco in the region, and the Japanese Ministry of Education undertook a general statistical survey of the educational position in the same countries.

The results of these studies, which will ultimately be published in the full report of the conference, may be found in the working papers entitled respectively: (a) 'Perspectives of Educational Development in Asia: a Draft Asian Model', and (b) 'The Educational Situation in Asia: Past Trends and Present Situation'.

Reports from Member States were also received at the same conference and reference has been made to them in a number of the profiles.

The director of this study assisted in the preparation of the 'Asian model' and attended the meeting as a consultant on higher education. It may be recorded that the conference 'having taken note of the Summary Report of the Joint Unesco-IAU Study on Higher Education and Development in South-East Asia, generally endorses the conclusions there presented, including the establishment in the region of an Institute of Higher Education and Development, and appreciates the potential value of such studies in other parts of the region'.[1] A similar endorsement was given to the report at the Conference of the International Association of Universities held in Tokyo in September 1965, and attended by more than 500 leading figures from universities all over the world, particular emphasis being placed upon qualitative improvement in secondary and higher education through the improvement of teacher education, in which it was maintained universities should assume intellectual leadership.

The situation as illustrated by these profiles may best be compared to the 'stills' produced when an educational film is arrested to focus on a significant shot—action is halted at a moment of time,[2] and the result may give the appearance of a static rather than a tremendously dynamic process.

The march of events is of course too swift for this to be an entirely satisfactory method. For example, news of a vast new subsidy of U.S.$100 million to be made available by the United States of America, through the new Asian Development Bank, for education in South-East Asia, basically for interregional projects, has only very recently been received. Already the nucleus of a secretariat has been assembled in Thailand to deal with this windfall. But nothing more of a situation which may have far-reaching effects is specifically known to the study other than what has, at the very last moment, been inadequately recorded here.

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[1] *Conference of Ministers of Education and Ministers responsible for Economic Planning of Member States in Asia: Final Report* (Bangkok, Unesco, 1965), EDECAS/12, Rep. Com: 11, p. 4, para. 20.

[2] This simile should not be pressed too far: a mica slide protects the film from heat but the resulting image is likely to be slightly blurred.

The difficulties encountered have not, however, lain only with the future, they also exist in the present. It would have been useful, for instance, to have been able to adopt 1965 as a terminal base line for all data, but a great deal of information made available to the study does not in fact extend beyond 1962, whether through the inevitable delays in assembling data or through other reasons, and recent attempts to bring it up to date have not always been rewarded. Yet to cut off more recent information, where it has been obtained, for the sake of statistical uniformity, would clearly have been a sorry policy.

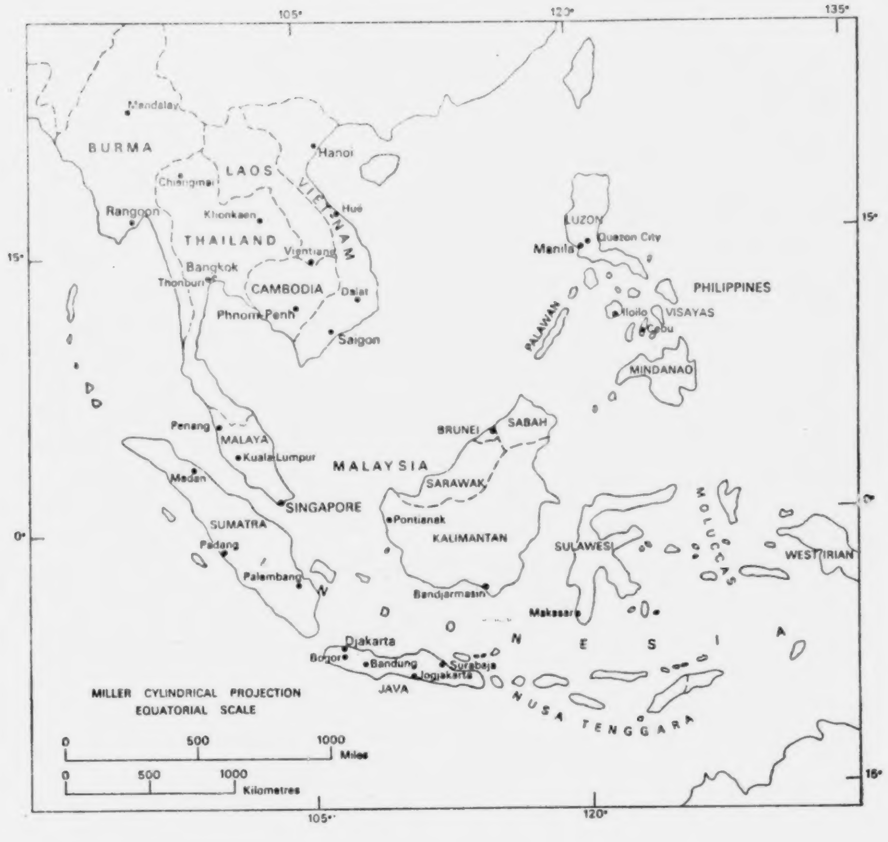
Nevertheless, despite these and doubtless many other shortcomings it is hoped that these profiles may be helpful in that they catch the development of education, and in particular higher education, at a moment when the effects of emergent nationalism are becoming clear and when trends have started to become apparent. It is also hoped that they may draw attention to some of the warning lights which have already begun to show: the effects of the sacrifice of quality to quantity; a general failure to strengthen the most vital sector of the educational system, the teaching profession, by providing incentives to stimulate recruitment; the danger of indiscriminate entry into fields of technical and technological education without adequate information and careful projections on the manpower needs of the economy in these fields; the need to give greater attention to education in the basic sciences and to post-graduate study and research in universities; and the danger and short-sightedness of failing to promote the welfare and development of the vast rural areas of the region in the interests of the few cities which are the seats of power and the site of industrial development. Above all, it becomes clear that if these warnings are not heeded, countries of the region will face the growing paradox of an increasing number of educated unemployed, combined with a shortage of suitable manpower for crucial sectors of economic and social development.

The introduction to the first volume of this study, after indicating that it was primarily directed to policy makers and educational planners, went on to say: 'More broadly, the report is conceived in terms of the needs and interests of all those engaged in higher education as teachers, research workers, administrators, or members of university councils. Finally, it is written on the hypothesis that all levels of the educational system are inextricably interdependent. Accordingly, although the field of the study is South-East Asia, the assembled data are regional and the argument is in regional terms, it is hoped that its observations and findings will have a general value for those engaged in programmes of technical assistance in the fields of advanced studies, for students of comparative education, and for those engaged in studying, teaching or practising the techniques of educational planning, wherever they may be.'

It is also hoped that these profiles, by supplementing and pointing up the more general evidence and arguments of the report, will be of equal service to those engaged in education, whether as teachers, administrators or planners, and particularly to those members of university faculties and councils who are prepared to visualize their institutions, and the process of teaching, learning and research which goes on in them as a vital factor in national development and international understanding.

A major contribution to this volume of the study has been made by the Assistant Director, Mr. Rafe-uz-Zaman.

H.H.


105°
120°
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Mandalay
BURMA
LAOS
Hanoi
Chiengmai
VIETNAM
Hue
Rangoon
Khonkaen
THAILAND
Vientiane
Bangkok
Thonburi
CAMBODIA
Dalat
Phnom-Penh
Saigon
LUZON
Quezon City
Manila
PHILIPPINES
PALAWAN
Iloilo
VISAYAS
Cebu
MINDANAO
BRUNEI
SABAH
Penang
MALAYA
Kuala Lumpur
MALAYSIA
SARAWAK
Medan
SINGAPORE
Pontianak
SUMATRA
KALIMANTAN
Padang
SULAWESI
MOLUCCAS
WEST IRIAN
Palembang
Bandjarmasin
Makasar
INDONESIA
Djakarta
Bogor
Bandung
Surabaja
Jogjakarta
JAVA
NUSA TENGGARA
MILLER CYLINDRICAL PROJECTION
EQUATORIAL SCALE
0
500
1000
Miles
0
500
1000
Kilometres

The above diagrammatic map depicts the region covered by the study. The boundaries shown are not, in some instances, finally determined and their reproduction does not imply official endorsement or acceptance by the United Nations.

Burma

BACKGROUND

LAND AND PEOPLE

The Union of Burma, composed of five states, extends over nearly 262,000 square miles. The western region contains the richest deltas of the major rivers disgorging into the Andaman Sea, and is bordered by the Indian sub-continent and the Bay of Bengal. The eastern extremities march in the north-east with China and the People's Republic of Viet-Nam, and in the south-east, continuing further south, with Thailand. From each of these territories it is separated by mountains running north to south and generally rising to heights of 6,000 to 8,000 feet, and sometimes towering to over 10,000 feet. The mountains enclose a rich valley fed by the main river system of the great Irrawaddy and its tributaries—the Chindwin, the Salween and the Sittang. The country is traditionally divided into upper and lower sectors. The upper sector includes the great wide flatland and rice-growing area of the Irrawaddy delta, extending almost to the second major city of the country, Mandalay—which, after the capital and metropolitan centre of Rangoon, is also the next important centre of higher education. The lower sector, including Mandalay as its urban centre, holds the State of the Chin Hills to the west, the Kachin State, and part of the Shan State, and the little Karenni State.[1]

Burma's tropical climate is influenced by its high altitudes and the south-west monsoons. The rainy season generally extends from the middle of May to October, and the dry season lasts for the rest of the year, in which the highest temperatures of about 100° F. are reached in the plains just before the break of the monsoons: the temperature range fluctuates less on the plateaux than in the plains.

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[1] Karenni State, now known as Kayah State and the people (once known popularly as Karennis) as Kayahs.

Despite an early emphasis on industrialization after independence—more recently transformed into a consolidation of the agricultural base—Burma primarily remains an agricultural country, producing rice in great quantities, both to supply staple food needs of the country and, until 1964 when Thailand moved ahead, to serve as the world's greatest rice export centre, chiefly supplying India. Although pre-war levels of production have been surpassed only in recent years, about three-quarters of the cultivated land area has continued to be devoted to the production of rice and, with a reliably clement climate, there have been no serious crop failures. Apart from vegetables, fruit, maize, sugar-cane, ground-nuts and other minor crops, widely grown, in the dry and higher areas of the country increasing attention has been given to wheat, tobacco and cotton. It is in these areas, too, that elephants are abundant and timber grows as a major export product, with teak a leading hardwood used for both construction and furniture.

The oil deposits that had enriched the Burmah-Shell Company have in recent years dwindled to a point where the redevelopment of significant export now depends upon positive results from continuing surveys of as yet unexploited resources[1] (current production is largely utilized to meet domestic needs). There are, however, rich deposits of lead, tin, zinc, iron, silver and wolfram, in addition to substantial pockets bearing rubies and other precious and semi-precious stones, that clearly demand fuller and more efficient exploitation. Like Indonesia, the country has an immense potential in raw materials and power, but their organized and proper exploitation remains a task for the future.

With a high death-rate compensating for a no less prolific birth-rate, the population of Burma has increased at a lower pace than in most other territories in South-East Asia: from about 19 million in 1951 to 24 million in 1964.[2] On the other hand, differences in population density remain as wide as in most other areas of the region: from a high point of nearly 260 people per square mile (Irrawaddy delta) to a low point of 73 (the Tenasserim peninsula) in Burma proper; and in the states, from about 57 per square mile (Kawthooli) to a minimum of some 15 per square mile.

From the ethnic point of view, the Burman landscape presents differences that basically affect the life of the nation. Even though, in South-East Asian terms, these are not quite as complex as elsewhere, they still contribute to extreme local conflicts. The Indian Chettiar moneylender controlled and expropriated the Burman peasant, and the small Chinese communities exercised their usual strong influence on the commercial and nascent industrial life of the country. But the ethnic and linguistic, as well as politically dominant, Burmese and allied groups have continued to form some three-fourths of the total population. The other main ethnic groups are the Kachin and Shan Tayoke in the north; the Shan in the north-west; the Karenni, Padaung and Palaung in the south-west; the Chin of the western Chin Hills; the Arakanese in the west bordering on Bengal and containing a strong Indian admixture; the Karen, Mon and Taung Thu in the delta. These people are basically of Mongoloid stock who came down into Burma from the north, but the main branches have quite distinct features, live in well-defined areas and each speaks a different language, so that it is well to remember that Burma is a union of states still trying to consolidate their national identity.[1]

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[1] A major strike was reported in 1965: see p. 32.

[2] Source: 'Statistics on: Population; Education; School Finance; National Income, Public Finance and General Economic Situation; Manpower', prepared for Asian Education Planning Mission, Burma, by Planning Branch, Ministry of Education, Revolutionary Government of the Union of Burma, Rangoon, January 1965 (Bangkok, Unesco, serial no. 379.15 BUR).

Although Burmese as such (including the Arakanese dialect) is probably spoken by no more than some two-thirds of the population, it is a member of a sub-family of Tibeto-Burman languages spoken by over 80 per cent of the population. In addition to Burmese, the sub-family includes Karen, with about 2 million speakers; Chin and Kachin, each with about half a million; and Lisu, Lahu and Akha, of which none has more than 100,000 speakers. Next in importance is the Thai sub-family of languages, including Shan with the largest number of speakers, accounting for a total of some 7.5 per cent of the population. The Mon and Wa groups of the Mon-Khmer languages are spoken by about 4.5 per cent of the population. Chinese languages, largely Hokkien and Cantonese, are the mother tongues of no more than 2 per cent, and Indo-European (Hindi, Bengali, English) and Dravidian (Tamil and Telegu) languages circulate in the remaining 3 to 4 per cent. Burmese remains by far the most widely spoken, and even more widely understood language, and as regional rivalries are surmounted and education, using Burmese as the basic medium of instruction,[2] becomes more universal, this process itself should help to assuage regional and ethnic conflicts.

The following population projections (Table 1) between 1960-80—which include a breakdown for school-age groups—have been computed on the basis of the United Nations' conservative projection, assuming a constant fertility and a normal mortality decline.[3]

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[1] 'To call a Burman Burmese
Is not always likely to please
For he may be Shan, Chin,
Karen or Kachin,
Or even an Arakanese.'

[2] Though other vernaculars may continue to be used at lower primary levels in public schools (Karen, Shan, Chin and Kachin) and in certain private schools (Chinese, Indian and English).

[3] (a) *Future Population Estimates by Sex and Age, Report III, The Population of South-East Asia (including Ceylon and China: Taiwan) 1950-1980* (New York, United Nations, Department of Economic and Social Affairs, 1958).
(b) These differ only slightly from the conservative population projections made by the Burmese Census Department, estimating an increase from 22,355,000 in 1960 to 35,049,000 in 1980.

TABLE 1. Population projections, 1960-80 (in thousands)

Age group	1960		1965		1970		1975		1980	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
All ages	21 505	10 602	23 529	11 610	25 943	12 811	28 837	14 254	32 333	15 993
School-age groups:										
6-9	2 180	1 079	2 424	1 197	2 697	1 331	3 012	1 487	3 405	1 682
10-12	1 482	732	1 655	818	1 844	910	2 057	1 015	2 307	1 139
13-15	1 372	676	1 524	752	1 706	842	1 897	938	2 128	1 049

THE SOCIO-ECONOMIC SITUATION

The recorded history of Burma begins with the foundation of the State of Pagan in 1044 by King Anawratha. This also marks the introduction of Indianized concepts and forms of government and of the Buddhist religion, of which today not less than 80 per cent of the population are followers. However, this empire was destroyed through regional conflicts in 1287, and until the middle of the eighteenth century a succession of petty kingdoms arose and clashed with each other to gain supremacy. Then, a township headman of Shwebo conquered or brought together rival kingdoms as far as Rangoon—which means 'end of strife'—in 1755 and founded, as King Alaungpaya, the last but perhaps greatest royal dynasty, based on the Indian model of divine kingship. This dynasty, with numerous vicissitudes, including despotic rule by mad kings, one of whom had some eighty of his half-brothers killed to ensure his supremacy, continued in power until a series of three Anglo-Burman wars (sparked by a combination of economic factors and British concern over an extension of French power in South-East Asia), starting in 1824, led to British occupation of all of upper and much of lower Burma by June 1886. Subsequently, a series of revolts occurred which it took four years to put down.

During British rule, political stability was achieved and, with it, the economy of the country—particularly its rice-growing capacity—developed remarkably; but even with improved communications and the extension of effective governmental authority to outlying areas, regional and ethnic conflicts throve on a separatist administrative system, which promoted local patriotism rather than national solidarity. 'The traditional integrating factors of widespread male literacy in Burmese, general effectiveness of Buddhist religious sanctions with regard to moral conduct, and popular allegiance to the sovereign authority as divine king and patron of the Buddhist faith were severely impaired after 1885. The simultaneous destruction of the vital institution of the *myothugyi* (township headmen) and the decay of discipline within the Buddhist monastic order contributed greatly to political and social demoralization so clearly in evidence after the First World War.'[1] At the same time, the notion of *awza*, placing a high value on the search for attainment of power in given social groupings, and of *an-ah-deh*, ambivalently restricting the exercise of the will to power through emotional consideration for the feelings and demands of others, continued to mould the mainstream of social and economic life. The interplay of the customs and sentiments associated with these traditional concepts

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1. John F. Cady, *A History of Modern Burma*, p. 38. (Ithaca, Cornell University Press, 1960, second printing.)

perhaps accounts in good measure both for the combination of extremes of gentleness and pugnacity found in Burma to this day and for the ease with which the Chettiar and the Chinese were able to exploit the peasant and dominate commercial life.

The traditionally strong social position of women was largely retained in the modern system of education introduced by Britain, when, as well as having access to formal instruction (the monastery schools had not been open to them and their education had been restricted to the home), they began to play a more and more important role as teachers. According to an old Burmese proverb, among things not to be trusted were a ruler, the branch of a tree and a woman; but women nevertheless held a dominant position in the home, enjoyed an economic equality with husbands and brothers, customarily married in accordance with personal choice, and were able to secure divorces through a relatively simple process of mutual consent. Thus, although women deferred to notions of male superiority in the order of creation and before the law, in practice they enjoyed virtual equality and frequently were the more disciplined and responsible members of the family. Today they also have full equality in law, the right to vote and, although female education has lagged behind that of males—particularly at the primary level—in 1964/65 female enrolments in arts and social sciences at the tertiary level came to nearly 50 per cent of the total enrolment and to over 57 per cent in teacher training.

From 1923 to 1935, Burma was governed as a province of India—and its institutions of higher education were affiliated to the University of Calcutta. In 1935 came the beginnings of responsible government; and at the end of the Second World War, after a period of Japanese occupation, Bogyoke Aung San succeeded in bringing about agreement between leaders of the major ethnic groups to unite and form a central government. Subsequently, Burma became an independent sovereign republic on 4 January 1948, with a government at first patterned on the British parliamentary system.

Thereafter ensued a period of political instability, involving assassinations and accompanied by corruption and economic stagnation, ended by an orderly military assumption of government, headed by General Ne Win, in October 1958. At this time, while intensifying efforts to achieve national integration, and the suppression of regional rebellions based upon a socialist-oriented series of agrarian, economic and political reforms, the government nevertheless took a strong stand against communist elements in the country. However, in March 1962 an army coup placed the country's administration under the absolute control of the Revolutionary Government of Burma, and the formulated policy of the Burmese way to socialism led increasingly toward the extreme left.

Toward the end of the year, General Ne Win rejected the idea of parliamentary democracy, 'because experience had shown that that system could never take Burma to the socialist goal, where there would be no exploitation of men by men'.[1] The only legal political party sponsored by the Revolutionary Council, the Burma Programme Party (BSPP), challenged by a conservative Buddhist whispering campaign that it was both Communist and anti-religious, found it necessary to clarify its main objectives and their divergences from Communist goals: the BSPP permitted full freedom of conscience and religion; it respected man as an individual; it recognized the need for a continuing reappraisal of doctrine or policy, since the need for improvements could never cease to exist; it was the party of all physical and mental workers, regardless of race or creed; it fully opposed feudal landlordism, capitalism and the exploitation of the individual.

In September 1964, the Council comprised fourteen members (all high military officials) who held portfolios for: Defence (General Ne Win, also chairman of the Council); Education and Health; Information and Culture; Agriculture and Forestry and Land Nationalization; Industry; Mines; Labour; Public Works and National Housing; Finance and Revenue; Supply, Cooperatives and Trade Development; Transport and Communications; Foreign Affairs and National Planning; Relief, Resettlement and National Solidarity and Social Welfare—and, with the longest title if not the most important—Home Affairs, Judiciary Affairs, Democratization of Local Administration, Religious Affairs, Immigration, National Registration and Census (all in 1964 supervised by one man, Colonel Kyaw Soe).[2]

The economy and general plan objectives

Following a Two-Year Plan of Economic Development adopted soon after independence in 1948, which was more a socialist enumeration of the economic aspirations of a newly born State than a fully fledged plan, an Eight-Year Plan, 1951/52 to 1959/60—for the second half modified by a misleadingly named First Four-Year Plan—essentially aimed at the restoration of pre-war levels of production and living. In fact in 1959/60, when the Second Four-Year Plan (1961/62 to 1964/65) was drawn up, the GDP had risen by only 11 per cent over the pre-war level, so that with population growth, the *per capita* income and consumption were both about 13 per cent below pre-war levels. In foreign trade there was an increased dependence on a single crop, rice (70 per cent of total export earnings as against only 47 per cent pre-war), mainly due to the cessation of petroleum exports and a drastic decline in the export of other minerals and timber. Thus, while the pattern of ownership of means of production was changed significantly—land being nationalized,[1] external marketing, banking and medical services, transport and wholesale trade becoming government monopolies and government enterprise generally playing a leading role—the Second Four-Year Plan,[2] reviewing the situation, concluded that 'it cannot therefore be said that there has been a structural improvement in the Burmese economy since the War'. Accordingly, this plan proposed, with the improvement of standards of living as a primary objective, to treble national income in sixteen years by a series of four-year plans,[3] which even then would raise *per capita* income in real terms by only 74 per cent over pre-war levels.[4] The second objective was to develop a modern diversified economy based on efficient agriculture and expanded industry capable of self-sustained growth, though starting with the manufacture of light consumer goods, only gradually broadening its base toward heavy industry. Efforts were also to be made to achieve balanced regional development, avoiding a concentration of urbanization and the creation of depressed areas.

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[1] As quoted in *Far Eastern Economic Review 1964 Yearbook*, p. 95 (Hong Kong, December 1963). It may be remembered that the French version of the last phrase so impressed President Soekarno that he has frequently made public use of it.

[2] Details of the current machinery of government and planning are not available, and with the abrogation of the *Second Four-Year Plan for the Union of Burma (1961/62 to 1964/65)*, published by the Ministry of National Planning in 1961, in so far as planning has taken place, it has been more on a short-term than a long-term basis, accompanied by surveys of problems and of the immediate effects of policies and their implementation.

The short-term targets of the Second Four-Year Plan were:

1. An annual economic growth rate of 6 per cent, population growth being estimated at 2.3 per cent, and a relatively accelerated rate of growth in more underdeveloped areas.
2. Self-sufficiency in selected agricultural products, such as oil seeds, sugar-cane, cotton and wheat (the output of which had already been increased to nearly four times the low pre-war level), and at the same time, increased export of such produce as rice, beans, pulses and Virginia tobacco to earn additional foreign exchange.
3. In certain cases replacing manufactured goods previously imported by those made locally, the consequential savings being diverted largely toward the purchase of foreign capital goods.
4. Reinforcing the infrastructure of the economy to make the private sector's investment more effective[5] as well as to create external economies for the Government's own investment and to confer direct benefits on the people in the form of health, education and other social services.
5. Development of transport and communications, not least in order to contribute to the unity of the Union and the maintenance of law and order.

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[1] Formerly about 50 per cent of the farmland in lower Burma had been in the hands of non-agriculturists.

[2] *Second Four-Year Plan ...*, op. cit., p. 18.

[3] With growth rates of 6 per cent in the first, 7.6 in the second, 9 in the third and 7.25 per cent in the fourth.

[4] This calculation was based on a perhaps exaggerated estimate of population growth at more than 50 per cent in the sixteen-year period.

[5] The plan underlined the importance of promoting private investment as one of the most important objectives, but subsequent government policy has largely rejected this idea.

6. Finally—finding that unemployment, and particularly unemployment among the educated (also see p. 89) was a growing problem—priority for the adoption of projects and methods of implementation that would create the greatest amount of employment per unit of investment.[1]

In fact, between 1960/61 and 1962/63, an average annual growth rate of about 4.5 per cent was achieved at 1961/62 constant prices; but in 1963/64 a decline of nearly 2 per cent ensued. In the public sector this was attributed to defects in the administrative machinery; and it was said that 'those who believe in the socialist system lack experience in running State enterprises'.[2] In August 1964, the Government started a nation-wide economic survey, dividing the country into some 7,000 *kwins* (units of surveyed land) for this purpose.

This should surely help in identifying weaknesses in the economy, for despite heavy priority given to agriculture since 1963, it was industrial production which, after a drop of 9 per cent the previous year, rose by 13 per cent in 1964/65, while agriculture only just about made up for its shortfall in 1963/64. In 1965, the Government took steps to abolish all land rent, provided increased agricultural credits, distributed pesticides, and encouraged collectivized cultivation and consequently better tractor services. At a peasant seminar attended by some 2,000 farmers, showing thirty-four exhibits of improved and new agricultural methods, held at Rangoon in February-March 1965, General Ne Win also assured the farmers that they would one day have their own representative peasant council to manage their affairs. With these measures, and a continuation in the increased use of fertilizers (increased by 45 per cent in 1963/64), a combination of further market incentives and effective agricultural research and extension work should enable Burma to realize its basic agricultural development objectives without encountering more setbacks.

On the industrial front, despite the sweeping nationalization of enterprises started in 1964, private enterprises in 1964/65 still accounted for about 38 per cent of total production. But toward the end of 1965, the Government, repealing the 1964 Law for the Protection of the Socialist Economy, passed 'The Law Empowering Actions in Furtherance of Construction of the Socialist Economic System of 1965' which enables it to nationalize the whole or part of any business enterprise or property and to fix the prices of any commodity.

At present, while such manufacturing enterprises as a plywood mill, major timber and teak mills, a zinc-smelting plant, a glass factory, textile and paper mills are being set up, industry is still very much in its initial stage, beginning with food processing, housing, clothing, industrial and transport materials.

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[1] In calculations made to estimate investments required to provide new employment, it was assumed that the proportions of the working population would remain constant, both in relation to the total population, at about 41 per cent, and in terms of about 63 per cent of the working population continuing to engage in agriculture.

[2] *Far Eastern Economic Review 1965 Yearbook*, p. 96 (Hong Kong, December, 1964).

In the field of mining, particularly encouraged by the present Government, apart from some progress made in stepping up outputs of zinc, tin and tungsten concentrates, there is considerable encouragement to be derived from the 1964 discovery of major iron-ore and coal deposits, through a series of Krupps-assisted surveys, and from the 1965 discovery of rich oil deposits in Myanaung—the biggest strike in thirty years (already yielding 12,200 gallons per day)—and of natural gas near Rangoon.

Finally, steady progress has been made in the improvement of transportation, including the introduction of diesel engines on the railways; and the generation of electric power has, between 1960/61 and 1963/64, been expanded by nearly 30 per cent (although the greater part of the country still awaits electrification).

All things considered, the economic development of the country appears to be ready to pick up momentum (provided always that political instability does not cause new disruptions), especially as the Government, with a sound budget and a healthy balance of payments, has for 1965/66 moved toward a sharply increased allocation for investment in economic development—nearly 40 per cent higher than in 1964/65. The political factor apart, the rate of progress will clearly depend greatly on improvements in the quality of administration and management which, in turn, will be based not only on the quantities and mix of graduates produced in different fields of higher education, but also on their personal qualities as well as their professional skills.[1]

THE EDUCATIONAL SYSTEM

The general pattern of education current since 1960 has been four years of primary school; three for the middle school; two for the high school, leading to the school-leaving certificate (SLC), and a further year for matriculation, as a minimum entrance requirement for higher education, in which degree courses require a minimum of four (arts and science) to seven (medicine) years of study. The pattern for vocational and technical education varies slightly from this in that there are some shorter courses following on grade 4, grade 7, and grade 9 (cf. pp. 44-7); the minimum period of study for a post-secondary engineering or agricultural diploma is three years.

Since independence, increasing emphasis has been placed on the development of vocational education and on introducing practical instruction and training in all types and levels of education. In the Revolutionary Council's proclamation of 'The Burmese Way to Socialism', made on 30 April 1962, it was stated '... that the existing educational system unequated with livelihood will have to be transformed. An educational system equated with livelihood and based on socialistic moral values will be brought about. Science will be given precedence in education ...'[1] Accordingly it was planned that, in school work, academic subjects should be balanced by both civic education and training in such fields as handicrafts, agriculture and domestic science, while teacher training for the primary level, in particular, is oriented to prepare teachers to work in rural areas and to enhance the schools' contribution to local economic growth and social progress.

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[1] It is not impossible, however, if most of them have little sympathy for a nationalized way of life, that inefficiency and corruption may creep in to undermine the huge bureaucratic structure that has now been erected.

Primary, lower secondary and vocational education are free, but universal compulsory four-year primary education is to be gradually introduced by 1971, and it is intended to lengthen this to nine years, possibly by 1977. While for some time after independence all State education had been made free, fees were reintroduced in 1959 and now meet around one-third of the recurrent cost of public upper secondary and higher education. Promotion from one grade to the next depends on passing annual examinations, and results of the government examinations held for the final year of each post-primary level of education also form the basis for the award of scholarships.

Although certain vocational training programmes are operated by various government departments and the four states of the Union have their own administrative machinery for the supervision of schools, basically all education is supervised and co-ordinated by the Ministry of Education. The Minister of Education (who in 1964 also held the portfolio of Public Health) is supported by a Secretary of Education, who assists in the formulation of policy and liaison with other ministries; two Directorates of Education, one for Planning and Teacher Training and another for Administration; a special Directorate for Technical and Vocational Education; and a Universities Central Administration Office.

The work of the Administrative Directorate of Education is carried out by a director, two assistant directors, 13 inspectors of schools, 36 district education officers, 137 deputy inspectors, and a small inspectorate in the specialized fields of agriculture, industrial arts, physical education and domestic science. Each inspector of schools is responsible for one of the thirteen educational circles in Burma proper and the Chin special division. Each circle is divided into three districts under a district education officer, who is assisted by three or four deputy inspectors of schools to supervise the primary education of the whole district. Direct responsibility for the inspection and supervision of all secondary education rests with the Inspector of Schools. While the Minister of Education controls all appointments for university-level institutions and his own executive officers, the Administrative Director of Education controls appointments, promotions, transfers and other matters relating to high- and middle-school headmasters and senior assistant teachers.[1] The Inspector of Schools bears responsibility for the teaching establishment at the level of junior assistant teachers[2] and primary-school teachers.

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[1] See p. 52 for a statement of socialist aims of higher education.

Including specialized inspectors, in 1962 the average number of primary schools for which each district officer and deputy inspector was responsible worked out at about 56, leaving each inspector to supervise 44 middle and high schools. Recognizing growing needs and pressures on the school inspection system, the Ministry of Education stated in January 1962: '... the Government of Burma contemplates expanding the inspectorate. As the number of schools has increased by leaps and bounds, the inspecting officers find much difficulty to cope with their inspection duties. Usually the inspecting officers are required to make at least one visit to every school annually.[3] Unfortunately, in real practice, they are not able to rise equal to their task due to insurmountable pressure of office work and scarcity of transport facilities. When compulsory primary education is introduced in the country, this will further necessitate the appointment of additional deputy inspectors of schools.'[4]

The Planning and Training Directorate of Education, evolved from the former Directorate of Teacher Training, is in addition to this original task charged with the following functions: (a) educational research and compilation of educational statistics and data; (b) curriculum development; (c) compulsory education; (d) educational planning and implementation. To carry out all these functions there were, in 1962, only a director, one assistant director, one education research officer and his statistical assistant. Recognizing the need to develop this directorate and its research and statistical work, the Ministry report[5] gave top priority to this task and to training appropriately qualified personnel.

A special agency for technical and vocational education was formed in 1964: '... with the objective of filling the need for effective teaching of technical and vocational subjects, to provide diversification of courses in the educational system, to lead pupils through proper channels by giving educational and vocational guidance at the end of each stage of education, i.e., primary, middle and high school ...'[6] This directorate has two branches: one for technical, and the other for agricultural education, which are provided in

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[1] Teaching at the high-school level.

[2] Teaching at the middle-school level.

[3] Formerly it used to be at least twice a year.

[4] Ministry of Education, Burma, *Report on Over-all Educational Planning in Burma, to be presented at the Asia Regional Symposium of Over-all Educational Planning at New Delhi, on 29 January 1962*, p. 6.

[5] ibid.

[6] *Economic Survey of the Union of Burma, 1964*, p. 74, Ministry of National Planning (Rangoon, Central Press, 1964).

TABLE 2. State school and registered private school enrolments, 1958/59 to 1961/62[1]

Year	Number of schools						Enrolments					
	Primary		Middle		High		Primary		Middle		High	
	State	Private	State	Private	State	Private	State	Private	State	Private	State	Private
1958/59	11 157	54	507	75	271	142	1 466 331	60 684	201 229	21 018	55 513	14 090
1959/60	11 557	164	520 (598)	155	273 (304)	313	1 543 874	88 213	172 581 (193 895)	32 560	47 660 (64 406)	22 746
1960/61	11 582	202	520 (608)	198	273 (305)	396	1 512 232	97 655	176 305 (197 267)	36 386	46 889 (65 053)	26 403
1961/62	12 401	213	528 (617)	208	273 (307)	383	1 602 261	98 594	176 024 (199 911)	36 322	62 375 (82 266)	25 423

1. Enrolments in agricultural, technical and vocational schools (amounting to about 4,000 in 1961/62) are not included. With the exception of the bracketed figures, the statistics have been abstracted from *Economic Survey of the Union of Burma* for 1961, 1963 and 1964. The bracketed figures, showing significantly larger numbers of schools and enrolments, are taken from an unpublished paper: 'Statistics on Population; Education; School Finance; National Income, Public Finance and General Economic Situation; Manpower', op. cit.

selected State high schools known as vocationally biased schools and at special institutes and schools (see pp. 40 and 45).

The Central Universities Administration Office was established in 1964 to co-ordinate all the activities of the universities and institutes and to review the progress of these institutions. Working in association with this office, a selection board is in charge of supervising university admissions, although rectors are empowered to consider applications for change of course or institution from successful candidates, in accordance with principles laid down by the board.

In addition to State schools, there are a number of private schools which, as a result of government policy adopted in 1948, no longer receive any financial assistance, so that apart from endowments and benefactions from communities and religious groups supporting them, they must rely heavily on fees to meet costs. However, government recognition is given to registered schools which form about 70 per cent of the total number of private schools; in 1961/62 there were 383 high, 208 middle and 213 primary registered private schools as against 522, 351 and 373 applicants for registration at these respective levels. Information on enrolments is available only for the registered schools and is compared with State school enrolments over the period 1958/59 to 1961/62 in Table 2.

These data indicate that in recent years the number of private schools and their enrolments have increased at a much faster pace than in the public sector, although the private proportion of schools and enrolments is substantial only at the secondary level. Even taking the higher figures for State schools, in 1961 the proportion of private schools and enrolments at the middle level were about 25 and 15 per cent and at the upper level 58 and 23 per cent respectively. The ratio for schools is considerably larger than for enrolments, because the average State school is much bigger. It is also interesting to note that, while enrolments in public middle schools have

TABLE 3. Growth of enrolments in State schools, by level; 1938/39, 1946/47 and 1962/63

Level	Enrolments			Indices for 1962/63 (1946/47=100)
	1938/39	1946/47	1962/63	
Primary (grades 1-4)	384 060	436 130	1 602 261	367
Secondary[1] (grades 5-10)	235 543	20 312	299 256[2]	1 473
University[3]	2 728	2 127	15 271	718

1. Secondary technical/vocational enrolments not included.
2. Higher figure taken from special statistical report, op. cit. *The Economic Survey . . ., 1963*, op. cit., gives 252,837.
3. Post-secondary technical/vocational enrolments not included.

remained more or less static if they have not declined, in public high schools there has been a substantial increase—12 to 48 per cent in three years, depending on whether the lower or higher figures are taken.

However, if the post-war year 1946/47 is taken as the base—when enrolments in secondary education had, due to war conditions and damage, declined to little over 20,000 from the pre-war figure of well over 200,000—the expansion of education has been phenomenal at all levels. Table 3 gives the comparative data, although unfortunately no analyses are available on separate developments in general, vocational/technical and teacher-training fields.

By far the biggest increase has taken place at the secondary level, but much of this has gone to make up ground lost during the Second World War, representing an increase of only 44 per cent over the 1938/39 secondary enrolment of 235,543.

The distribution of State school enrolments by grades and types of education for 1963 is given in Table 4, and presents the pattern of a sharply tapering pyramid. Comment on dropouts between grades and terminal points will be found in subsequent sections on the various levels and types of education.

Before independence there had been three types of schools according to the medium of instruction: English; Anglo-vernacular with increasing emphasis on English in the higher standards; vernacular with Burmese or some other vernacular as the medium of instruction. The latter, administered by local government bodies, were the only schools available for the vast majority of children throughout the country. As all university education was in English, pupils of these schools had no direct access to higher education. Only limited attempts, supported by scholarships, were made to enable the more promising vernacular school pupils to enter Anglo-vernacular schools. The 1946 Educational Policy Inquiry Committee recommended Burmese as the medium of instruction in schools, with English as a compulsory second language from grade 5. These recommendations were embodied in the educational policy announced by the national government after Burma had achieved independence in 1948 and began to be implemented in 1950. This introduced a single unified system of State schools; private schools were allowed to continue and choose their own media of instruction, but without the previous grants-in-aid from government.

The late introduction of English, together with a shortage of qualified teachers, resulted in major difficulties. So long as English remained the medium of instruction in higher education and hence a key subject for the matriculation examination, high failure rates persisted in this examination, as did inadequate proficiency in English among those students who passed and entered the university.

Today Burmese is the medium of instruction in all State schools and is to be adopted completely in all fields of higher education by 1969, while for

TABLE 4. Enrolments by grades in State schools, 1963[1]

Grades	General and vocationally biased	Technical/ vocational	Teacher training
Primary			
1	1 100 993		
2	306 129		
3	221 931		
4	160 795		
Sub-total 1-4	1 789 848		
Secondary			
5	80 908	918	
6	66 989		
7	54 958		
Sub-total 5-7	202 855	918	
Secondary			
8	39 618	1 000	2 078
9	41 555		
10	14 798		
Sub-total 8-10	95 971	871[2]	
11 12	10 000[3]		366
University and other higher, 12+	———	5 271[4]	———

1. See Table 7 for 1961/62 distribution between secondary general and vocationally biased enrolments.
2. Since, while the minimum entrance qualification is the SLC, many students have done their matriculation, there is in this sense an overlap between grades 10-12 and 11-13.
3. Estimate of intermediate grades 11-12 enrolments in universities based on actual figures for 1962 and 1963 total enrolments.
4. Estimated as in note 3. Breakdowns by field of study are not available for 1963, but are given for 1963/64 and 1964/65 (without grade distribution) in Table 12 below.

the time being English is still used to a considerable extent, particularly in scientific and technical subjects. Private schools, however, continue, at least partially, to use other media of instruction, in particular English, Mandarin, and one of the Indian languages (mainly Tamil or Telegu). Professor Nyi Nyi, professor of geology, Rangoon University of Arts and Science, has summarized the principles and policies concerning the medium of instruction adopted in the educational reorganization of November 1964 as follows:[1] 'All educationists agree that the most effective way of teaching a subject is through the students' mother tongue. It has also been proved conclusively in the People's Republic of China and Japan that even the intricate subjects of modern science and technology can be taught effectively in a non-European language. Although admittedly there would be difficulties and obstacles during the transition period, it [illegible] nevertheless be admitted that in the long run, the effectiveness and advantages of the adoption of mother tongue as the medium of instruction would definitely outweigh the inconveniences of the present.

'Under the new system, Burmese is adopted as the medium of instruction and will be completely effective in five years' time. With the change in the medium of instruction, follow-up measures like effective mastery of a foreign language so as to comprehend a technical paper written in his field of study, production of appropriate textbooks, standardization of vocabularies and technical terms, publication of translation journals, were being planned and should appear in due course.'

Primary education

Although primary enrolments, as shown in Table 4, have expanded very rapidly since independence at an annual cumulative rate of about 8.5 per cent, the Government estimated that in 1963 only 58.8 per cent of the relevant age group of the population was in school.[2] It is also to be noted that actual annual increases in enrolment have decreased from an average of 5.4 per cent during 1955-60 to 2.8 per cent for 1960/61 to 1961/62. Furthermore, nearly 32 per cent of the primary enrolment in 1959/60 consisted of over-age students in the age group 10-18.

A further problem is posed by the fact that a major part of the enrolment is concentrated in grade 1, and few complete their primary education. Between 1959 and 1963, enrolments in grade 1 constituted around 60 per cent of the total primary enrolments. The actual distribution for 1963 was: grade 1, 1,100,993 (61.5 per cent); grade 2, 306,129 (17.1 per cent); grade 3, 221,931 (12.4 per cent); grade 4, 160,795 (9 per cent); total 1,789,848.

On the basis of annual reports for education for the years 1956/57 to 1959/60, survival ratios for promotion from one standard to the next are as follows:[3] grade 1: 1,000 boys, 1,000 girls; grade 2: 335 and 298; grade 3: 282 and 227; grade 4: 235 and 162.

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1. Nyi Nyi, 'Cardinal features of recent reforms in university education', in: *The Working People's Daily Supplement on the Seventeenth Independence Anniversary,* 4 January, 1965, p. 6.
2. *Economic Survey of the Union of Burma, 1964,* op. cit., p. 69.
3. The enrolment cohort is traced from one year to the next, so that some repeaters from the original entry may come through with subsequent cohorts, reaching grade 4 in 1960/61 or later. But since the enrolments for any given grade and year also include repeaters, the possible source of error is not likely to be significant.

The drop-out rates are highest between grades 1 and 2, and substantially higher for girls, who over 1961-63 formed about 46 per cent of the total primary enrolment in State schools. It is also to be noted that, of those who reach grade 4, at any given examination in the period under review no more than around 52 per cent passed; so that, even assuming that some get through on subsequent attempts, it would seem that considerably less than 20 per cent of those entering primary school successfully complete their primary education.

While various other factors doubtless contribute to this wastage, the shortage of trained teachers is surely in a large measure responsible. Between 1956/57 and 1961/62, despite the intensive emergency training of primary schoolteachers (see pp. 48-9) the pupil-teacher ratio continued to fluctuate around 44.1. Furthermore, the proportion of primary teachers without professional qualifications increased from 24 per cent in 1956/57 to over 30 per cent[1] in 1963. The *Economic Survey of the Union of Burma, 1964*[2] reports that: 'Vigorous efforts are being made to weed out the preponderance of teachers of low calibre, a situation which has come about because of (1) hurried appointments in the past to keep up with the rapidly increasing number of schools (2,000 additional primary schools opened between 1956/57 and September 1963) and (2) low pay-scales turning away men of skill and even forcing the skilled men already in service to leave....'

Secondary education

General and vocationally biased.[3] Only about half of those enrolled in the last primary grade go on to grade 5 and secondary education; but subsequent declines in enrolment are comparatively small until the transition from the terminal grade 9 to the matriculation grade 10 is reached. It must, however, be remembered that a considerable number of students apparently prepare privately for the matriculation examination, as the number appearing for it is always much greater than the number enrolled in grade 10 of State schools.[4] Nevertheless, reviewing the situation, the *Economic Survey of the Union of Burma, 1964* comments:[5] 'This high rate of drop-out after the primary level creates a situation in which the would-be labour force is mostly equipped with a maximum of primary-level education.[6] This would tend to

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[1] Figures of both 30.9 and 34.4 per cent are given in different government documents.

[2] op. cit., p. 82.

[3] It is not possible to separate all technical/vocational education and training completely from general secondary education, as there are a number of vocationally biased general secondary schools for which complete separate statistics are not available. Therefore, while fully technical or vocational institutions are dealt with separately below, the biased category is taken together with general secondary education.

[4] See tables 5 and 6.

[5] op. cit., p. 70.

[6] Obviously not in the sense of having received full primary education, but of a

TABLE 5. General secondary enrolment: distribution by grade and type in State schools, 1961/62[1]

School and grade	Total enrolment	Enrolment in schools with vocational bias	Percentage of total enrolment in vocationally biased schools
Middle			
Grade 5	78 049	10 158	13
Grade 6	46 331	8 026	17
Grade 7[2]	56 579	9 586	17
Sub-total	180 959	27 770	15
High			
Grade 8	39 959	2 069	5
Grade 9	21 549	1 999	9
Grade 10	3 581	—	—
Sub-total	65 089	4 068	6
TOTAL	246 048	31 838	13

1. As of September 1961.
2. As grade 7 has a terminal examination, its larger enrolments—compared with grade 6—are probably due to failures who repeat the course.

build up a potential force to be tapped only for craftsmen and artisans instead of for technicians who would at least require a middle level of education.'

In 1963 it was officially estimated that some 11 per cent of the relevant age group of the population in Burma proper were enrolled in secondary schools; for the Union of Burma as a whole, on the other hand, including registered private school enrolments, actual figures and conservative population estimates would suggest about 15 per cent in middle schools and 9 per cent in high schools. This means that at present no more than 15 per cent of the relevant age group has access to education up to seven years, and thus also indicates how far Burma has to go to reach the Karachi Plan goal of seven years of universal compulsory education.

The new stress on science education takes on an added edge when it is noted that in 1963 only 13 out of 273 high schools were equipped with practical laboratory apparatus and qualified teachers for the effective teaching of physics and chemistry. Plans for the future aim at establishing at least one

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large proportion who have had no more, and usually less, than four years of education.

TABLE 6. Changes in the secondary school-leaving examinations: candidates appearing and passing the School Leaving Certificate and Matriculation examinations, 1946-62

Year[1]	Number appearing	Number passing[2]			
		Matriculation		School Leaving Certificate	
		Number	Percentage	Number	Percentage
1946	1 167	538	46.1		
1951	8 804	1 700	19.3		
			No.	%	
1952	13 045		1 938	14.9	
1956	31 896		5 355	16.8	
1957	37 785	2 881	7.6	3 858	10.2
1960	70 556	5 667	8.0	5 537	7.8
1961	(76 700) (M) (65 576) (SLC)	9 356[3]	12.2	21 585[4]	32.9
1962	13 143	3 131	23.8		

1. *1946-51*: matriculation examination conducted by the University of Rangoon open to all candidates over 16 years of age and of 'good moral character'.
   1952-56: combined School Leaving Certificate/Matriculation examination and results after grade 9.
   1957-60: combined examination, but separate results indicating candidates deemed to have (a) satisfied only School Leaving Certificate requirements, and (b) qualified for matriculation as well.
   1961-62: School Leaving Certificate after grade 9 and matriculation at least one year later, conducted by the universities of Rangoon and Mandalay (M = matriculation).
2. Includes students passing at supplementary examinations in the same year as well as those succeeding at the first attempt.
3. Only 7,030 succeeded at the first attempt, i.e., 9.2 per cent.
4. Only 16,648 succeeded at the first attempt, i.e., 25.4 per cent.

State high school with facilities for teaching science in each sub-division of all thirteen educational circles.

Despite an emphasis on developing vocationally biased secondary schools,[1] this element, as shown by Table 5 remains slight in comparison to general education. However, since secondary education in Burma only covers the six years of grades 5 to 10—normally a period in which basic general education should be consolidated with subsequent concentration on technical/vocational training, it may be considered by no means an unsatisfactory position. On this premise, it is perhaps to be regretted that the biggest advance in introducing vocational education has been achieved not at the high school but at the middle-school level.

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[1] Which was prominent enough in 1948, though reiterated more strongly in 1964.

Even with increasingly high failure rates, which reached their peak in 1960 (see Table 6), the number of candidates grew so rapidly between 1946 and 1960 that in this period the number completing high school increased twentyfold and the number passing the matriculation examination tenfold.

Among the causes of high failure rates insufficient proficiency in English was certainly a major factor, though substantial failure rates in other subjects also suggest a general inadequacy in preparation, most noticeable in science subjects.

It was largely because of the high failure rate in the matriculation examination, but also with the aim of improving the general efficiency of upper secondary education that a Government Education Enquiry Committee[1] in 1959 reviewed the situation and recommended a new system separating the matriculation from the School Leaving Certificate. The committee concluded that the joint examination system had serious disadvantages and that separation should yield distinct and important benefits. On the first count: 'According to educational statistics we find that only about 5 per cent of the total enrolment in the secondary education stage proceed to universities. How futile and wasteful it is to teach each and every pupil as if his ultimate objective were a Matriculation Certificate. It looks as though the curriculum and teaching techniques employed in secondary schools were meant only for the 5 per cent of the pupils, regardless of the needs, interests and aptitudes of the remaining 95 per cent.'[2] It also added that the experience of the past seven years indicated that no more than 15 per cent of those appearing for a combined high school/matriculation examination would pass and that consequent wastage would be made worse by frustation among the failing majority.

On the positive side, it felt that separation would make it possible to use the first two years of upper secondary schooling 'to the best cause of the country and education by imparting all-round general education which is essential for turning children into useful members of the community and intelligent citizens of the Union'.[3] The subsequent one year to matriculation reserved for 5 per cent of the pupils could then be tailored to provide adequate preparation for university studies. 'The difference between the techniques of teaching pupils for democratic citizenship and for diverting them into technical, agricultural and vocational channels and for university education should be noted. These two objectives are difficult of achievement at the same time. It should be realized that a sound foundation of general education is of immense value to pupils who like to proceed either to the university or

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1. *Education Enquiry Committee, Interim Report*, Government of the Union of Burma (Rangoon, February 1959, mimeo.).
2. ibid., p. 16.
3. ibid., p. 17.

TABLE 7. Technical/vocational institutions, 1963

Institutions[1]	Requirements for admission		Duration of course (years)	Output of graduates[3]
	Age	Minimum schooling[2]		
Technical				
Government technical institutes (2)	16-20	SLC	3	108
Government Technical High School	Not over 18	Grade 7	3[4]	141
Industrial trade schools (artisan) (3)	15-20	Grade 4	3[4]	121
Handicraft School	16-20	Grade 4	1	64
Engineering technical evening classes	16+	SLC	3	...
Agriculture				
Agricultural Institute	18+	SLC	3[4]	47
Agricultural high schools (2)	Not over 20	Grade 7	2	48
Veterinary College	18-24	SLC	2	24
Agricultural middle schools[5] (2)	Not over 16	Grade 4	3	27

1. Admission to all institutions by entrance examinations, except in the case of the Agricultural Institute where the stipulation has been waived since 1964 for graduates of the Agricultural High School who have also passed at least the School Leaving Certificate.
2. SLC = School Leaving Certificate.
3. Outputs include graduates who will teach in industrial arts and in agriculture. (... = Figures not available.)
4. Raised to three years in 1962 from a previous duration of two years.
5. In addition there is also an Industrial Trade School training tractor operators and mechanics in six-month courses open to candidates aged 18-25, with completion of grade 4 as a minimum qualification.

to technical, agricultural and vocational schools or institutes or to enter other occupations or government service."[1] To these considerations it was added that the separation would also facilitate adjustment between the objectives of education and examinations; improve the efficiency of teaching and the percentages of passes; relieve congestion in the top classes of high school; free the curriculum and preparation for the School Leaving Certificate from dominance by university entrance requirements; promote the selection of adequately qualified and motivated students for admission to the university; retain nine years of schooling as a minimum entrance requirement for three-year technician-level technicial/vocational education, while raising the university entrance requirement to a minimum of ten years.

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[1] ibid., p. 18. The implications of this emphasis on the importance of an adequate grounding in general education, has, however, apparently been ignored in maintaining and expanding vocational education at lower as well as upper secondary levels.

The 1962 decline in absolute numbers indicated in Table 6 may perhaps be attributed as much to the strict introduction of the new regulations for matriculation, which could be met by only a small proportion of those who would normally have appeared for it, as to the consequences of student demonstrations and riots between September 1961 and July 1962. It is likely that in subsequent years these numbers will have increased substantially. What is more remarkable is that with the new system the pass rate was nearly doubled in a single year.

At the same time the quality of teaching at the secondary level was being improved. While pupil/teacher ratios had narrowed only slightly for State middle schools from 32.1 in 1957 to 29.1 in 1963, and for high schools, after an improvement to 22.1 in 1961, had again risen to about 30.1 in 1963, the proportion of those holding required professional qualifications has been increased substantially. In 1956/57 insufficiently qualified teachers numbered 36.3 per cent in high schools and 23.2 per cent in middle schools: in 1963 these percentages had been reduced to 26.9 and 11.8 per cent respectively.

Vocational and technical.[1] Apart from vocationally biased secondary education—on which available data have been presented under the previous section—in 1963/64 there were eight technical schools (including a system of evening classes in Rangoon) enrolling some 2,600 students, five agricultural schools with about 520 students, and a Veterinary College. A six-month course for tractor operators and mechanics was also available. Table 7 gives admission requirements, durations of study and training, and outputs for 1963.

The enrolments and output for 1961 to 1964 for the craftsman (grade 5+), lower technician (grades 8-9/10) and technician (grades 10-12 or 11-13) levels in both the technical and agricultural sectors are given in Table 8.

Since there are unexplained fluctuations in the figures in Table 8 and there is a lack of any pattern in the correlation between enrolments and output, they can be taken only as a very rough guide to what has actually been happening, although they are abstracted from official documents.[2] All it is possible to say is that while in recent years enrolments have clearly increased, output, for one reason or another, has generally declined, with the partial exception of upper secondary technical education, where the 1964 output is slightly higher than for 1961. On the other hand, the recent development of technical/vocational education represents a major advance on previous outputs: (a) to a total of 732 technicians produced up to 1960, in the next four years 530 were added, representing an increase of 72 per cent; (b) to a total of 1,050 lower-level technicians and craftsmen produced up to 1960, in the next four years 652 were added, representing an increase of 62 per cent.

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[1] Government technical institutes, which are post-secondary in Burmese terminology, but cover grades 10-12 (or with matriculation entry, at most 11-13) are dealt with here rather than under higher education.

[2] *Economic Survey of the Union of Burma, 1964*, and the special statistical report of the Planning Branch, op. cit.

But at the same time the over-all growth rate of engineers from 1960 to 1964 was also about 72 per cent, whereas according to the *Economic Survey of the Union of Burma, 1964*,[1] 'it has been worked out that for optimum efficiency the distribution of technologists to technicians and craftsmen should be in the order of 1 : 5 : 25.... The annual output in Burma is in the order of 1 : 1.3 : 1.7.'

The survey considers that there are two major obstacles in the way of implementing measures to step up the output of technicians: (a) general entrance examinations, and (b) inadequate enrolments. The disadvantage of a general (academic) entrance examination, it is said, is that its 'impartiality' puts the vocationally biased school graduate at a disadvantage. 'This could be one of the reasons why students who have taken biased subjects rarely seek admission in the next higher level of education.'

The survey[2] also stresses that, while diversification at each level of educa-

TABLE 8. Enrolments and outputs in technical and agricultural secondary education, 1961-64

Type and level	1961		1962		1963		1964	
	Enrolment	Output	Enrolment	Output	Enrolment	Output	Enrolment	Output
Technical								
Grade 5+	383	211	366	187	708[1]	185	822[1]	69
Grades 8-10	345		423		425		486	
Grades 10-12[2]	663	140	676	133	699	108	822	149
Agriculture								
Grades 5-7[3]	94[4]	35	109	42	210	27	226	24
Grades 8-9	205	66	158	56	179	48	178	57
Grades 10-12[5]	207	92	208	87	172	71	173	53
TOTAL	1 897	544	1 940	505	2 393	439	2 707	352

1. Sudden new additional enrolments in a third trade school starting in 1963, which for a three-year course might be expected to bear first fruit in 1966.
2. Evening class data not included, since they are available only for enrolments with no indication of outputs.
3. Between 1956 and 1964 about 5,160 tractor operators and mechanics were trained in special trade schools, for which breakdowns are not included in the table.
4. An unexplained decline from an enrolment which previously had increased from 106 in 1957/58 to 185 in 1959/60.
5. For Veterinary College (grades 10-11) includes actual outputs, but only an estimated constant enrolment of 60, which is given as its capacity in the *Economic Survey of the Union of Burma, 1964*, op. cit., table 54. Also see Table 19 below for a breakdown of secondary and higher agricultural education outputs.

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[1] op. cit., p. 74.

[2] ibid., p. 80.

tion requires increased enrolments in the technical/vocational fields, the quality of such education and training should receive full attention; that vocational courses should be devised to attract pupils dropping out at various stages of the general education stream; and that the more able crafsmen and technicians should have the opportunity to go on to higher levels of education and training. It recommends that: 'In the inter-institutional structure, facilities exist for skilled workers to better their calibre to the technician level by means of evening classes though practically none exist for the class of technicians to proceed to graduate level. Workers with practical experience should not be deprived of the opportunity to acquire academic knowledge of the highest level, while students with sound academic knowledge should be acquainted with practical knowledge and problems. . . .'[1]

In addition to the above forms of vocational training, various apprenticeship schemes to augment the supply of specific types of required skilled labour are organized by a number of government departments, e.g., Highways, Railways, Electric Supply Board, Inland Water Transport Board, People's Oil Industry, and the Board of Management for the Port of Rangoon. In general, the minimum required level of education for admission to these courses is the middle school certificate presented by candidates who are not more than 20 years old. Courses vary from a short term of six months[2] to comprehensive training which may extend up to five years. Instruction is usually 20 per cent theoretical and 80 per cent practical, and the Rangoon Engineering Technical Evening Classes (ETEC) help in providing theoretical instruction. Although all theoretical needs of the various departments cannot yet be met by the ETEC, there are signs that both the departments and the ETEC are making efforts to achieve satisfactory co-ordination.

Teacher training. Secondary-level institutions in charge of training teachers for primary schools (Primary Assistant Teachers, PAT) and for middle schools (Junior Assistant Teachers, JAT) are two training colleges at Rangoon and Mandalay, offering courses at both levels, and four training institutes for PATs only, at Moulmein, Meiktila, Bassein and Kyaukpyu. Two more institutes, at Toungoo and Prome, were to be established in June 1962,[3] but apparently in 1964 there were still only four institutes.[4] High-school teachers (Senior Assistant Teachers, SAT) were until 1964 trained at the

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1. ibid., pp. 80-1.
2. However, a three-month training course was recently started, enrolling 39 trainees in 1964, 'to provide a thorough understanding of the basic principles of business, production and industrial enterprise which are consonant with the Burmese Way to Socialism', by the People's Basic Industries Department at the Government Technical High School, Rangoon. (Three months to achieve a 'thorough understanding' suggests an immoderately ambitious programme.)
3. And subsequently another three, the five together having an ultimate annual output capacity of 1,500 PATs.
4. Toungoo was opened in 1965 with an enrolment of 161.

Faculty of Education, Rangoon University, which has since become the Institute of Education.

The basic minimum admission requirement for the one-year PAT training course has been the middle-school certificate (grade 7), but the Third Four-Year Education Plan, 1961-65, aims at raising the entrance qualification to the School Leaving Certificate (grade 9) while retaining the same training period.

The basic admission requirement for the JAT course is the Matriculation Certificate (now grade 10, previously grade 9), but exceptions have been made for those who have passed grade 9 of the vernacular or Anglo-vernacular schools, hold a PAT certificate and have been in service for at least two years. In fact, until recently most of those admitted have been under-qualified in-service teachers—in 1960/61, 90 per cent of all trainees were in service. This explains at least in part why there has been only slight improvement in the teacher-pupil ratio (see p. 45) since, while qualifications have been upgraded, less than 10 per cent of the output consisted of new teachers. However, in 1963/64 an extension course for JAT training was opened to admit 250 trainees in addition to the regular enrolment of 370.

The duration of study and training for the JAT certificate until June 1961 had been only one year, but since then it has been extended to two years to improve the quality of trainees and make adequate provision for the inclusion of so-called 'life-adjustment' courses (see p. 50).

During 1952-55, two-month emergency training courses for unqualified in-service primary schoolteachers had been operated, which in this period covered a total of 10,452 teachers. These are now required to complete the full one-year PAT training course, and in 1963/64 altogether 1,998 emergency-trained teachers did so. Summer vacation refresher courses for primary and secondary teachers are also offered in the district towns as well as in Rangoon.

Finally, while until recently no special training for school inspectors was available (they have generally been appointed from among experienced headmasters or deputy inspecting officers with high educational qualifications coupled with seniority of service), short in-service training courses for deputy inspectors of schools are now being arranged four times a year to enable them 'to keep abreast of socialist thoughts and to carry out their duties more efficiently and in line with the Socialist Programme and Policy'.[1]

Apart from the additional extension course for JAT trainees mentioned above, there has been a slight decline in enrolments and output for JATs and only small increases of enrolments for the regular PAT category from 1958 to 1964. On the other hand, if it is assumed that the examinations constitute valid tests of proficiency and not merely certificates of attendance, the input-output efficiency has been remarkable throughout. The colossal

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[1] *Economic Survey of the Union of Burma, 1964*, op. cit.

TABLE 9. Enrolments and outputs of secondary teacher-training institutions,[1] 1955-64

Year	JAT[2]		PAT[3]		Total	
	Enrolled	Certificated	Enrolled	Certificated	Enrolled	Certificated
Total up to 1960		3 524		13 621[4]		17 145
1955	339	331	5 570[5]	5 497[6]	5 909	5 828
1958	434	430	1 981	1 902	2 415	2 332
1961	368	—[7]	2 183	2 164	2 551	
1964	370[8]	362	2 206	2 105	2 576	2 467

1. Enrolments are for the beginning of the academic year and outputs for the end of the year. Thus graduates can be compared directly with enrolments in the same year for PATs and for the one-year JAT course until 1961. Of the 1961 JAT enrolment of 368, all graduated at the end of 1962. However, in considering the data provided in this table on enrolments and outputs of teacher-training institutions, it must be borne in mind that a considerable part of outputs consist of up-graded in-service teachers rather than new additions to the total teaching force.
2. JAT = Junior Assistant Teachers (for grades 5-7).
3. PAT = Primary Assistant Teachers (for grades 1-4).
4. Not including 10,452 emergency trainees.
5. Emergency trainees included.
6. Two-month course certificates included.
7. No graduates, as in June 1961 the course had been extended from one to two years.
8. Does not include 250 trainees in extension course.

emergency PAT output before 1960 was rendered necessary in view of the rapid expansion of primary education, including the average addition of about 1,000 new primary schools each year between 1952 and 1960, as well as a high percentage of unqualified teachers who urgently required at least some basic training. Even so, as noted (p. 40), it has not been possible to achieve any improvement in the primary teacher-pupil ratio.

The Education Ministry's *Report on Over-all Educational Planning in Burma*[1] stresses that: 'Teacher training continues to form the most important activity in the field of education today in our country. To rehabilitate the country with the existing resources in a manner befitting our hard-earned independence and to help develop education on lines as embodied in the New Education Plan (1961-65), teachers "worth the salt" are needed even in greater numbers than in the past. Teachers we need today should have not only adequate academic qualification coupled with proper training, but also the right sort of attitude toward service.' The importance of the first quality is not disputed, but the second is regarded as even more essential. Training curricula and methods have been modified to shift the emphasis 'from academic learning to practical aspect of education wedded to life and life problems'.[1] For this purpose 'life-adjustment subjects' have been included in training programmes, so that teachers may go out into the districts 'fully equipped with over-all qualities—educational, moral and mental' and, at the same time, also 'well-fitted to take their worthy places in their respective school communities, doing their best in collaboration with the community leaders in matters of community development'.[2] The ten 'life-adjustment subjects' listed, which certainly cover problems and methods of community development, are: general science, special science, handicraft and technical education, agriculture and animal husbandry, fine arts, domestic science (for girls only), music, physical education, principles of hygiene and first aid, and moral instruction.

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[1] op. cit. supra, p. 8.

Another new emphasis in training is on improving the competence of teachers of the English language as an essential step to promote the proficiency of pupils who need this for their further education or other work.

HIGHER EDUCATION

STRUCTURE, ORGANIZATION AND ADMINISTRATION

Before the introduction of the Western system of education under British rule, the Buddhist monastic system included leading educational centres that provided for advanced instruction and studies not only in religious subjects, Pali and Burmese classics, but also in such practical fields as engineering, construction, manufacturing operations and, not least, court protocol. Admission to these higher studies required the completion of a period of monastic residence and studies as a novice monk (*Ko-yin*), started at the age of 12 to 15, being preceded by four to seven years of monastic schooling, from about the age of 8. Students who thus continued advanced studies, up to the age of about 20, qualified for appointments at various higher levels of government, and in the case of Pali and religious studies could be awarded the title of 'Holy Man' (*Rahan*).[3]

While the monastic system did influence primary and vernacular secondary education after British occupation, and since independence, it has been increasingly felt that the expansion of primary education must make full use of monastic facilities and co-operation. Higher education in Western form, however, was introduced without any such links and drew most of its students from English schools. In the late nineteenth century both the Government

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[1] ibid.

[2] ibid., p. 9.

[3] Currently there are a number of higher monastic institutions training teachers for Buddhist schools as well as monks and Pali scholars, including the University Dhammayon, supervised by the Ministry of Religious Affairs, on which no details are available.

College, Rangoon (developed out of the Government High School, Rangoon, in 1885), and the Missionary Judson College[1] were established as affiliates of the University of Calcutta in India, which itself had 875 Burmans on its rolls. In 1920 the two colleges amalgamated to form the University of Rangoon under a controversial University Act of 1920. This provided for a unified residential university instead of a federated one like Calcutta, and proposed that, in addition to introducing a more exacting standard for the high-school final (grade 10) examination, those admitted to the university should spend a probationary year to overcome deficiencies in their school education. The Burmans felt that they had been given inadequate constitutional reforms and rights on the excuse that they had no more than 400 degree holders, and they concluded that the University Act was designed to perpetuate such a situation by abruptly raising standards and reducing rather than increasing the number of Burmans receiving a higher education. Subsequent mass student strikes on the issue laid the pattern for a sequence of strikes on political as well as educational grounds, which have continued until the present time.[2] The offending Act was amended: Judson College, on the insistence of the American Baptist Mission, became an autonomous constituent college of the university, and the concept of the probationary year was dropped.

When the Japanese occupied Burma in 1942, the university comprised a University College (Judson College), a Medical College, a Teacher-Training College, an Agricultural College and an affiliated Intermediate College in Mandalay. From 1942 to 1945 the university as such was closed, though some examinations were held in India. In 1944, the Burmese Ministry of Education set up a State University of Burma;[3] but in December 1945, with the return of the civil administration, Rangoon University was reconstituted with a staff which included only two non-Burmans. However, it did not start functioning until nearly a year later (October 1946), and then only as an 'interim university' with faculties of arts and science. Many of the buildings had been severely damaged, most of the equipment was destroyed, the library gutted, and nine-tenths of its available premises continued to house military forces for two years after the British reoccupation of Rangoon. Nevertheless, when teaching was resumed, for the first time in the university's history the first-year enrolments outnumbered those of the upper grades, although only 1,200 of the 2,600 candidates for the matriculation examination were admitted.[4] The total enrolment came to 2,000 as against the pre-war average of around 550. Despite the serious shortage of equipment and materials and difficulties of student unrest and repeated strikes, subsequent enrolments continued to expand rapidly.

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[1] Originally called Baptist College, founded 1843.

[2] The movement to establish 'national schools' and a 'national university' endured only until 1922, but the birth of revolutionary nationalism had been secured through a marriage of political objectives and educational aspirations.

[3] More popularly known as Byaing-ye-o-sin College, after its locale.

[4] Interestingly enough, the Interim University Committee, chaired by Sir Herbert Dunkley, had reckoned with a first admission of only 500 students.

To meet the growing demand, new intermediate colleges (grades 11-12) were established in different parts of the country, and in 1958 the University of Mandalay was founded, incorporating the Mandalay Intermediate College (founded 1925) and the Agricultural College (founded 1938), and comprising faculties of arts, science, agriculture, and medicine (the last remained affiliated to Rangoon University for three years, to ensure a maintenance of standards and British recognition of degrees). By 1965 there were two degree-level colleges (Bassein and Moulmein) affiliated to the Rangoon University of Arts and Science, and three intermediate colleges (Magwe, Taunggyi, Myitkyina) affiliated to the University of Mandalay.

In November 1964 the two universities were reorganized in accordance with a new system of higher education laid down in the University Education Law of May 1964. The universities, retaining only their faculties of arts and science, were renamed Arts and Science University, Rangoon, and Arts and Science University, Mandalay. The other faculties were reconstituted as nine autonomous institutes: Education, Economics, Technology, Medicine I and II (all in Rangoon); Agriculture, and Medicine (Mandalay); Dental Surgery (Rangoon); Animal Husbandry, and Veterinary Science (both in Insein).

According to the new University Education Law: 'The objectives of the universities constituted under Section 3 shall be as follows: (a) to produce technicians who will participate in constructing Burmese socialism; (b) to produce scholars capable of promoting socialist economy, administration and social welfare; (c) to impart knowledge with emphasis on arts and science subjects that would equip a student with professional ability; (d) to engage in research work that would contribute to the success of socialist construction; (e) to impart knowledge that would equip a student with a mentality and moral character that are in consonance with socialist mode of thought; (f) to teach the student that there is dignity in labour, and to train him in this spirit; (g) to take measures that would ensure a constant advancement in the knowledge and skill of the working people who are engaged in the construction of Burmese socialism.'[1]

These objectives were formulated on the basis of recommendations made by a special Seminar on Higher Education opened on the Burmese New Year's Day, 16 April, in Rangoon. Led personally by the Minister of Education, Colonel Hla Han, the seminar was attended by all rectors, university council members, professors and other senior teaching staff, prospective employers of university graduates, heads of scientific and industrial organizations of the State, and high officials charged with the administration of the country's educational machinery. The seminar's terms of reference were:

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[1] Chapter III of Law 9 of 1964, promulgated on 29 May 1964; Government of Burma translation.

'... to redefine the object of university education, discuss the reorganization of the universities and formulate a new method of teaching higher education and generally to shape the country's new course of action in the task of giving higher or university education to the youth of the country'.[1]

It was felt that, with the size of Rangoon University swollen to an enrolment of over 15,000 in thirty teaching departments, the unified system of control and administration under a single rector had become a hindrance to efficiency and the development of academic disciplines. It remains to be seen whether the type of decentralization into autonomous institutes, consequently adopted, will not lead to difficulties of co-ordination with the compartmentalized specialization thus introduced.

According to Professor Nyi Nyi,[2] while science and technology are to be emphasized, the arts are not to be neglected and specialization for professional competence is to be given an adequate general background. 'The need of the humanizing influence of artists, historians, thinkers and their role in the development of culture', he stresses, 'is clearly recognized'. On the approach to specialization, he adds that: '... in the new system ... an undergraduate will be given a broad base in his first year (in fact, a base broader than that in the previous system), followed by specialized studies in one subject culminating in a specialist training in one branch of the subject....

'As a concrete case, a geology graduate will now have a broad picture of basic principles of mathematics, physics and chemistry and a working knowledge of English and Burmese languages; [instruction in] relevant portions of mathematics, physics and chemistry required by a geologist in his work; a general and comprehensive training in all the basic fields of geological science; and a specialized training in petroleum geology or mineral exploration, or hydrogeological work or specialized disciplines in basic geological surveying work. The new graduate will be undoubtedly superior academically to the previous B.Sc.(Pass) graduates and will even compare favourably with the old Honours graduates.' While this welcome aim of combining a broad basic education with specialization may well be achieved in the six- to seven-year courses in professional fields, it appears doubtful that this will be possible in four-year arts and science courses culminating in a first degree after a total period of only fourteen years of education.

In addition to the above-mentioned institutions, there are a degree-level Workers' College,[3] offering evening classes for workers, and three State schools, one in Mandalay and two in Rangoon, of fine arts, music and drama, with two- to three-year courses.

Apart from the last three institutions, which are responsible to the Ministry of Information and Culture, all others are controlled and supervised by the Ministry of Education, through a Central Universities Administration Office and an associated Selection Board for university admissions (also see above, p. 36). Each of the universities and institutes[1] is headed by a rector, assisted by a senate or administrative body, which includes heads of departments and a number of lecturers elected from among themselves.

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[1] 'Supplement on university education', *The Working People's Daily*, 2 November, 1964, p. 1.

[2] Nyi Nyi, op. cit., pp. 3 and 4.

[3] Formerly Adult University, privately operated.

Before the reorganization, the supreme governing bodies of the universities were university councils, including, in addition to academic representation from within the university, a number of lay members and representatives from among alumni, government, municipal and professional bodies, and also two graduates from outside the university nominated by the university student union. The vice-chancellor was the elected head of the institution, but the rector was charged with the duty of exercising general control over the officers of the university as well as supervising its administration. He was assisted by a deputy rector and, in the case of Rangoon, two registrars (one in charge of finance and examinations and the other of administration). The senate was the academic authority of the university, and in addition to its academic membership, included the director of education, and representatives from certain other government departments, e.g., Public Works, Medical Services, and Forestry.

Government grants are the main sources of finance for both capital and recurrent costs of the higher education institutions. Since 1959 fees, abolished in 1951, have been reintroduced, and it has been estimated that in arts and science subjects they cover about one-third of the total recurrent expenditure. General tuition fees average about 15 kyats (U.S. $3) per month, additional fees being charged for registration, examinations and laboratory work.

General admission policies and procedures

Until the reorganization, all matriculation certificate holders seeking admission were admitted to first-year university courses; but admission to professional courses in medicine and engineering depended on securing high marks in the subsequent intermediate examination for subjects relevant to the chosen field of study. Under the new system, university admissions are to be supervised by the centralized Board of Selection and regulated in accordance with the needs of the country and the availability of staff and facilities. Expansion of enrolments and improvement of facilities are to be planned in accordance with national needs rather than the demand for places. At the educational reorganization seminar,[2] the Minister of Education stressed: (a) that a careful selection of able and properly motivated students should be made at the time of admission; (b) that they should be supervised and guided systematically

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1. The Workers' College and the schools of fine arts, music and drama are headed by principals.
2. See p. 52.

at the university; and (c) that the number of students should be limited according to the strength of the teaching force, since quality could not be sacrificed to quantitative expansion. With these considerations in view, it was proposed to limit full-time admissions to 3,740, with specific quotas for each institution. Only students who had obtained an aggregate of 45 per cent of marks in the matriculation examination were to be admitted to the technical and professional institutes; and in case the number of matriculates exceeded available places, priority was to be given to those with better qualifications, with possible arrangements for admitting those left out in the following year. In fact, including part-time admissions, all of 5,751 qualified candidates were admitted—evening course students for the Workers' College and evening classes in Mandalay numbered 1,124 (see p. 53). However, it is likely that, as the number of matriculates increases, selection will become more competitive and strict.

Media of instruction

While, as noted, Burmese has now in principle been adopted as the medium of instruction at the university level, with English given due importance as a second language, the history of the debate on this question remains interesting.

When the university re-opened after the war, some subjects began to be taught in Burmese, particularly in the arts subjects, and a mixture of Burmese and English was used in many science lectures.

In January 1947, a University Organization Committee reported that the majority of witnesses were in favour of Burmese as the medium of instruction at the university provided that: (a) a translation bureau had issued a sufficient number of high-quality Burmese textbooks and reference works; (b) arrangements had been made to keep them up to date; (c) adequate time had been allowed to raise the standards of secondary schools—then beginning to teach in the Burmese medium—to the pre-war level; (d) English or another foreign language was made a compulsory second language at the university level. However, there were some witnesses who favoured a compromise and others who considered a change inadvisable. The first suggested that a start might be made by teaching some subjects in Burmese, while continuing to use English in others, running parallel classes in both English and Burmese, or combining Burmese lectures with English textbooks.

In 1948, following independence and the adoption of Burmese as the official language of the Union, a Burma Translation Society was founded, a Translation and Publications Department established at the university, and more teaching began to be undertaken in Burmese. In April 1958, Education Minister U Htun Tin announced that: (a) Burmese was to be the medium of instruction for all subjects at the university, starting from the first year of the intermediate in June 1960 and continuing progressively for the other university classes; (b) English would remain the medium of instruction in the honours and M.A. classes until 1965, when the matter would be considered afresh; (c) a scheme would be prepared to solve problems arising out of the change-over in regard to translating textbooks and finding a sufficient number of teachers able to teach in Burmese.

Meanwhile, the Burma Translation Society, assisted by the University Translation and Publications Department, a Board of Specialists and special committees—for science, history, an encyclopaedia, etc.—produced over 5 million copies of books in such fields as mass education, science, history, great books, Burmese culture and current events, and higher education subjects. Four volumes of a fourteen-volume illustrated *Burmese Encyclopaedia*, commissioned in 1949, had been issued by 1964; and co-operating with the Directorate of Textbook Production, established in 1952, the society also assisted in the preparation of textbooks for primary, secondary, technical and vocational schools, teachers' manuals and school library books. More recently its activities have come under direct government control, and have at least partly been assigned to other agencies. Thus, by May 1965, some 65,000 technical terms used in sixteen scientific and specialized subjects have been assigned standard Burmese equivalents by the Vocabulary Committee of the Burmese Literary and Translation Committee. In August 1964, a twenty-one-member Textbook Committee, with the Minister of Education as chairman, was set up to review textbooks already in use, as well as to prescribe appropriate new textbooks, and to establish subcommittees charged with editing, scrutinizing and compiling textbooks.

Finally, a Foreign Language Institute, founded in 1963, which accepts students from outside as well as within the university, provides courses in French, German, Japanese and Russian (the last most recently introduced, but rapidly becoming very popular), and is designed to help students to make use of world languages for research purposes, to follow special lectures by foreign scholars, and to provide intensive six-month courses for those proceeding abroad for further studies.

ENROLMENT AND GRADUATION TRENDS

While higher education enrolments about doubled between 1946/47 and 1951/52 (from 2,127 to 4,171) and more than trebled between the latter year and 1956/57 to 13,108, subsequent growth has been considerably slowed down, as shown by Table 10.

While a full breakdown of enrolment trends by fields of study is not available except for recent years (Table 12), first-degree graduation trends in main fields of study suggest that there has been not only a continuing but an increasing over-emphasis on outputs in the arts and social sciences.

Considering this situation unsatisfactory, as not meeting national needs for technical and professional manpower, the government in its educational

TABLE 10. Enrolments and estimated ratios to population in the 15-24 age-group, 1959/60 to 1963/64[1]

Year	Population 15-24 (thousands)	Enrolments[2]			Ratio to 1,000 of 15-24 population
		Rangoon	Mandalay	Total	
1959/60	3 927	9 846	2 293	12 139	3.1
1960/61	4 002	11 151	2 266	13 417	3.4
1961/62	4 085	11 569	3 329	14 898	3.6
1962/63	4 171	11 805	3 466	15 271	3.7
1963/64					
TOTAL	4 255	12 470	4 341	16 811	4.0
Female	2 170	4 289	1 132	5 421	2.5

1. Abstracted from Planning Branch statistical report, op. cit.
2. Only full-time enrolments, excluding those at the Adult University (Workers' College) and evening classes at Mandalay.

TABLE 11. First-degree outputs by main fields of study, 1954 and 1964

Field	Number		Percentage of total	
	1954	1964	1954	1964
Arts and social sciences	250[1]	1 705	47.7	58.3
Natural sciences	80	513	15.3	17.5
Engineering	42	77[2]	8.0	2.6
Medicine	84	186[3]	16.1	6.4
Agriculture and veterinary science	18	50[4]	3.4	1.7
Education and teacher training	50[5]	395	9.5	13.5
TOTAL	524	2 926	100	100

1. Includes 41 Bachelors in Commerce, but not 51 post-graduate Bachelors in Law (B.L.).
2. Excludes graduates in agricultural engineering (see note 4).
3. M.B.B.S. only. Dentists and para-medical staff not included.
4. Includes eight agricultural engineers as well as forestry graduates.
5. Does not include 27 diplomates (D.T.).

reorganization proposed to change and control the ratios of enrolments in the different fields of study. Accordingly, it had been decided to limit full-time admissions in arts and science (including economics) to 2,550;[1] but in

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[1] Not including part-time enrolments at the Workers' College and Mandalay evening classes.

TABLE 12. Distribution of full-time enrolments in higher education, 1963/64 and 1964/65[1]

Field of study	1963/64				1964/65			
	Male and female		Female		Male and female		Female	
	No.	% of total	No.	% of field	No.	% of total	No.	% of field
Humanities	8 620	51.3	3 299	38.3	5 256	30.7	2 394	45.5
Education	779[2]	4.6	415[3]	53.3	1 388	8.1	802	57.8
Law	447	2.7	65	14.5	422	2.5	102	24.2
Social science	780	4.6	307	39.4	1 664	9.7	754	45.3
Natural science	3 685	22.0	893	24.2	3 974	23.2	1 090	27.4
Engineering	663	3.9	17	2.6	1 568	9.2	108	6.9
Medicine	1 624	9.7	422	26.0	2 454	14.3	762	31.1
Agriculture and veterinary science	213	1.2	4	1.9	390	2.3	18	4.6
TOTAL	16 811	100	5 422	32	17 116	100	6 030	35

1. Data supplied by the Planning Branch of the Ministry of Education. However, percentages have been recalculated; and the same source gives separate statistics for education and teacher training with slightly higher enrolment figures (see notes 2 and 3).
2. 805 (see note 1).
3. 435 (see note 1).

TABLE 13. Distribution of enrolments, 1964/65

Institution	Locality	Enrolments									
		Human-ities	Social science	Natural science	Law	Forestry	Education	Technology	Medicine	Veteri-nary science	Agri-culture
Arts and Science University	Rangoon	3 343		2 355	422	91					
Bassein College[1]	Bassein	242		217							
Moulmein College[1]	Moulmein	309		204							
Arts and Science University	Mandalay	1 165		949							
Intermediate College[2]	Magwe	82		84							
Intermediate College[2]	Taunggyi	54		93							
Intermediate College[2]	Myitkyina	61		72							
Institute of Economics	Rangoon		1 664								
Institute of Education	Rangoon						1 388				
Institute of Technology	Rangoon							1 568			
Institute of Medicine I	Rangoon								1 650		
Institute of Medicine II	Rangoon								218		
Institute of Medicine	Mandalay								546		
Institute of Dental Surgery	Rangoon								40		
Institute of Veterinary Science	Insein									98	
Institute of Agriculture	Mandalay										201
TOTAL		5 256	1 664	3 974	422	91	1 388	1 568	2 454	98	201
Part-time											
Workers' College	Rangoon	2 452		684							
Evening classes	Mandalay	579		120							

[1] Degree colleges affiliated to Rangoon University.

[2] Intermediate colleges affiliated to Mandalay University.

fact 3,286 candidates were admitted, giving a ratio of about 71 per cent of total full-time admissions as against the 1964 arts and science output ratio of 75.8 per cent. The difference is slight, especially if it is remembered that with their shorter periods of study the arts and science fields yield more rapid outputs.[1]

Nevertheless, the distribution of total enrolments for 1963/64 and 1964/65 given in Table 12 show some significant changes. There is a substantial reduction in the absolute as well as the proportional enrolments in the humanities, while major increases have been registered for education, social sciences, engineering, medicine, and agriculture and veterinary science. Both absolute and proportional enrolments for law and natural sciences remain about the same. In noting that there has been a slight increase in the proportion of female enrolments, it may also be observed that this has taken place in all fields, although they remain concentrated in the humanities, social sciences and education, forming nearly 50 per cent of the total enrolment.

The distribution of 1964/65 enrolments by institutions and locality is given in Table 13.

While the colleges are being expanded—and there are proposals to raise Moulmein College to the status of a full university—it is seen that, for the time being, higher education enrolments remain concentrated in Rangoon and Mandalay. However, the colleges recruit their students from districts around the college towns, and efforts are thus being made to assure access to higher education for talented school leavers all over the country.[2]

As Table 14 shows, failure rates have been high for final examinations in several subjects, but especially so at the intermediate level and for first degrees in science and medicine. A substantial proportion of students never pass the intermediate barrier, particularly since some years ago when the 'three-F' rule, which does not permit a student to attempt an examination more than three times was introduced in 1955. As a result the ratio between total enrolments and graduate output has been low, though it has improved considerably from about 7.5 per cent in 1954 to 17.3 per cent in 1964. In addition to the high failure rate for the intermediate and bachelor's degree finals in arts and science, it is also to be remembered that there is a substantial repeater rate for both the first-year intermediate (grade 11) and the first-year bachelor's (grade 13): in 1962, well over 50 per cent of the candidates failed or did not appear for the final examinations at these levels, and in 1963 about 20 per cent of the first-year intermediate enrolment consisted of repeaters. This implies very heavy wastage, but there are signs of some improvement in efficiency in the 1962 and 1963 results.

The 1964 reorganization also attempts to improve the teaching staff force and teaching methods at higher education institutions, and English language

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[1] Furthermore, if the Workers' College and evening class admissions of 1,124 are included, the arts and science ratio works out to 77 per cent.

[2] Also see p. 77 for scholarship provisions.

TABLE 14. Students enrolled for[1] and passing final examinations, 1954-63

Qualification and subject[2]		1954			1957			1960			1963		
		Enrolment	Passes	%	Enrolment	Passes	%	Enrolment	Passes	%	Enrolment	Passes	%
Intermediate[3]	Arts	1 435	541	38	3 113	1 090	35	2 020	734	36	4 949	2 517	51[4]
	Science	1 580	594	38	3 657	1 220	33	2 084	734	35			
Bachelor's													
Arts[5]		598	209	35	962	442	46	1 001	452	45	1 958	1 148	59
Science		227	80	35	274	86	31	424	124	29			
Education[6]		87	77	89	115	108	94	268	252	94	981	905	92
Engineering[7]		43	42	98	75	72	96	194	119	61	138	126	91
Agriculture[8]		11	8	73	36	36	100	15	10[9]	67	...	33[10]	—
Forestry		13	10	77	14	12	86	21	19	90	11	10	91
Medicine (M.B.B.S.)		179	84	47	220	92	42	298	128	43	...	188	—
Law (B.L.)		96	51	53	139	80	58	192	108	56	145	92	63
B.A. and B.Sc. (Honours)[11]		23	21	91	26	26	100	27	27	100	—	—	—
B.A. and B.Sc. (General Honours)[12]		—	—	—	—	—	—	70	51	73	82	70	85
Master's	Arts[13]	9	4	44	19	7	37	11	10	91	25	5	20
	Science	2	0	0	8	2	25	1	1	100			

1. In the case of arts and science, particularly at the intermediate level, it is to be remembered that the enrolments refer to candidates for the examination, including a number appearing privately and therefore not figuring in class enrolment data.
2. From 1957, Mandalay statistics included.
3. For the intermediate, until 1961/62, two examinations were held each year—in March and in June—and an unknown number of those who appeared and failed in March sat again in June, so that the total number of candidates in the table must include some duplication within a single year. Therefore, in terms of students involved, the pass percentage for a given year must also be somewhat higher than the candidate/pass percentages suggest. But the figures for 1963, when the double examination system had been abolished, also suggest that this improvement must still have left a very high failure rate.
4. In 1962, pass percentage had reached its highest point, 61 %.
5. Includes bachelor's degree in commerce (B. Com.) but not diplomas in management and administration of which, in 1963, 15 were awarded to 18 candidates.
6. Includes B.A.(Ed.), B.Ed. and Diploma in Education, of which the last two are post-graduate awards.
7. Does not include data on agricultural engineering, which are given under agriculture.
8. Includes agricultural engineering, but, until 1963, not veterinary science.
9. The decrease in numbers is due to the fact that no examinations for agricultural engineers were held in this year.
10. Veterinary science degrees included.
11. Old honours course discontinued in 1961.
12. General honours course introduced in 1958/59.
13. Commerce master's degrees included for 1963 only.

and science teaching in secondary schools. The last appears to be particularly important in view of the increasingly high failure rates in the natural science degree classes and the continuingly low pass rate in the final year of medicine, since it is doubtful whether either of these situations can be traced solely to selection and teaching deficiencies at the universities. So far as selection is concerned, only about one-tenth of those taking the matriculation examination pass both this and the intermediate examination hurdles, and this should be more than sufficient to ensure that the cream of available talent has been selected. Thus, while both poor teaching quality and inadequate proficiency in English to follow lectures and understand English textbooks are probably responsible for graduation failures, it seems likely that the high rate of these is also due to poor basic preparation in the sciences at school. This also appears to be borne out by the facts that, in 1963, there were only thirteen high schools adequately equipped to teach science (p. 41) and that matriculation failure rates have been particularly high in mathematics, general science and chemistry. Finally, it may also be questioned whether a total period of fourteen years' education for a bachelor's degree in science and seventeen years for graduation in medicine are, particularly in view of language difficulties, sufficient for the majority to achieve adequate standards.

On the other hand, fairly high success rates for education, engineering, agriculture and forestry suggest that even with current disadvantages better results should be possible in other fields as well. For this purpose, it would clearly be useful to carry out comparative studies of standards, facilities and student motivations with two sets of subject fields.

It is also to be noted that only a very small proportion of students take honours or go on to complete requirements for a master's degree, and there is apparently no provision for doctoral work. This means that the research aspect of the universities remains acutely underdeveloped, that they are not in a position to provide their own high-quality staff, and that consequently they must rely heavily on study abroad for their senior teachers and accept honours graduates as assistant lecturers.

The honours system itself has undergone some changes. Until 1958/59 it provided special three-year courses concentrating on a single subject for students who had done particularly well in the intermediate examinations. First-Class, Second-Class—Division I or II— and Third-Class Honours were awarded in accordance with marks obtained in the final examination. In post-war years, the main objective of the honours system appears to have been to produce junior teachers for the university, while before the war many honours graduates took the competitive civil service examination in order to enter government service as well as to become tutors, with the chance of promotion after a period of teaching and further study. In 1958/59, mainly under the influence of the rector, Dr. Hla Myint, a new system of general honours was adopted. Students were selected as before; but the length of the honours course was reduced to two years and instead of concentrating on one subject, provided for study in one major and a minor subject, as contrasted with three subjects given equal attention in the B.A. and B.Sc. pass curricula. The minor subject had to be approved by the departmental head of the major subject in order to ensure academic relevance; but in practice it was found that so much emphasis was placed on the latter that, apart from its shorter duration, little difference remained between this and the old system, which continued to operate until the troubles of 1963, when no examinations were held. The new emphasis on ensuring some specialization in all courses (see p. 53) may in principle, with an adequate teaching force, well achieve a satisfactory compromise between both these honours systems and the pass-degree courses, particularly if either the period of pre-university schooling or the length of the courses in these subject fields could be increased.

THE POSITION IN THE MAIN FIELDS OF STUDY

Arts and social sciences

Courses in the humanities and commerce extend over a period of two years to the intermediate level and another two years for a pass degree. Two- or three-year honours courses may be taken by students obtaining high marks in the intermediate examination. The first degree in law (B.L.) is really a post-graduate qualification, requiring a minimum of two years' study after a first bachelor's degree. Courses for a master's degree require a minimum of one year's further study on possession of at least a second-class honours degree.

For a pass degree, three subjects must be chosen from an approved list of combinations—which apparently gives more attention to the time-table than to integration or a broad basic general education—and in each of these the student is expected to spend four to five hours per week in lectures and one to two hours in tutorial seminars.

As has been noted (Tables 12-14), both enrolments and outputs in arts and social sciences have until 1965 maintained a major preponderance, and the consequent imbalance in total graduate output and problems of graduate unemployment in these fields have caused considerable concern to the government. Many arts graduates are doing clerical jobs for which a degree is not required, though it may remain a personal asset. On the other hand, except for some students looking for 'easy' options, the arts subjects are very much a second or third choice, so that admissions to other fields are restricted more by a shortage of places than by the options of candidates. Reduction of the pressure in arts depends more on the expansion of facilities in other fields than on the success of vocational guidance.

Be that as it may, at present there seems to be an over-supply of arts graduates, and with some improvement in the admission-graduation ratios, the current level of enrolments should be ample to meet manpower requirements in this particular field for quite some time to come.[1] However, it might well be desirable that a considerably larger proportion of students should go on to further studies for a master's degree, and it appears essential that research work leading to a doctorate should be introduced if standards are to be raised and a sufficient number of highly qualified personnel made available for certain types of civil service employment as well as teaching positions in higher education.

Incidentally, many of the law students comprise arts graduates who have not been able to secure satisfactory employment and can afford to fill in time with such studies until they find something that suits them. Only a few intend to practise, and in terms of better employment opportunities and salaries, the law degree apparently has only a marginal influence.

Science and engineering

Requirements for science degrees are equivalent to those for arts except that, in addition to tutorials, considerable time must also be devoted to laboratory work, so that at the post-intermediate level a science student's week on average includes a total of about thirty hours of formal instruction and practicals. A degree in engineering requires a minimum of four years of study and training after completion of the intermediate course in science and, until recently, selection for admission was based on class records as well as marks obtained in the final intermediate examination. With the establishment of the Institute of Technology, it appears that the intermediate science classes for engineering will be incorporated in this institute, and selective entrance will be limited to candidates who have scored at least 45 per cent marks in their matriculation examination.

In his inaugural address at the institute in November 1965, Colonel Tin Soe, a member of its administrative body, indicated that, for a total of 5,751 applicants for admission to higher education, technology had been given as a first choice by 763, as a second by 919 and a third by 231 applicants. From among these 505 were selected, comprising 245 from State high schools and 260 from private and mission high schools.

It is not clear whether in future intermediate science graduates securing high marks may not still be able to transfer to technology, but before the reorganization, science certainly lost its best students to either technology or medicine. Indeed until recently, when the practice was disallowed, a considerable number of students who had not done well enough in the intermediate to secure admission to either of these fields, attempted it a second time in the hope of improving their chances.

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[1] According to calculations suggested by Hunter, the 1964 arts graduate output amounted to well over one-third of the total graduate requirement for 1972, whereas Hunter's assumptions would place this ratio at little over one-seventh.

TABLE 15. Outputs of graduate engineers, 1960-64

Year	Total	Civil	Electrical	Mechanical	Metallurgical	Mining	Auto-diesel	Others
1950-60	618	292	118	136	6	15	—	51
1961	121	35	33	36	1	2	—	14
1962	110	38	23	39	—	—	—	10
1963	126	48	26	48	—	—	—	4
1964	77[1]	33	14	19	—	—	3	8
1950-64	1 052	446	214	278	7	17	3	87

1. Does not include output of eight agricultural engineers.

Separate figures for science enrolments and output are not available after 1960, when there were 351 students enrolled in the final year with an output of 89. Reorganization has had practically no effect on science enrolments (see Table 12), and arts and science students generally continue to be lumped together for reviews of manpower, unemployment and other statistical considerations. While, as shown in Table 15, up-to-date details are available on technological outputs, science apparently remains regarded (though not, it is to be hoped, by the teachers) as an element of general education with little more than a cultural significance. This situation is not improved by the fact that little if any research work is carried on by academic staff, and there is no provision for students to undertake research toward a doctorate in science. The proportions of Hunter's recommendation of three to five scientists to support one agriculturist or engineer can be disputed, but it may be suggested that the recent Burman attitude to science teaching and output is not only in itself inadequate in quantitative terms, but also in its necessary qualitative effect on technological and agricultural education and the practical work and research attempted in these fields. However, at least in principle, the great importance of scientific education is now apparently being recognized and stressed.[1] Thus, announcing preparations for holding a Research Congress at the Rangoon University of Arts and Science, *The Working People's Daily* editorial on 29 January 1965 observed:

'This is a young nation. The few years of independence too had been ill spent in unrewarding activities. Now when the task of nation building is about to be undertaken in earnest it is found that many things need to be known before a real start can be made in some fields. The answers can be supplied only through the conduct of research. Hence it is a good thing that the spirit of inquiry should rise at this moment.

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[1] The Four-Year Plan had suggested expanding research at the Rangoon University Departments of Physics, Chemistry, Botany and Zoology, but made specific allocations only for the expansion of applied research, including nearly $1.9 million for the Union of Burma Applied Research Institute, Kanbe, operating under the guidance of the Burma Research Council. In 1960/61 the institute included departments or centres for analysis; metallurgy and geology; physics and engineering; technical information; instruments; applied chemistry; ceramics; standards and specifications; cellulose; atomic minerals; pharmaceutical and final chemicals; food technology; and atomic energy.

'. . . It is for each individual to develop that spirit. It has been proved on too many occasions that the spirit overcomes the limitations of facilities and funds.

'But the authorities can help in one direction. Departmental procedures should be set up to enable research to be undertaken. There should also be an organization to co-ordinate and guide research into the channels which will best serve the purposes of nation building.[1] Research consciousness is a valuable plant. It should be well nurtured and made to grow.'

Annual outputs of engineers increased about eightfold, from 15 in 1951 to 121 in 1961. Since then, as shown by Table 15, there has been little or no increase, but in 1965 engineering enrolments more than doubled those of 1964 (Table 12). Apparently in the past output had outpaced both the requirements of industrial and economic development and the availability of technicians and craftsmen to make full use of the engineers; but it is now felt that plans for a rapidly expanding economy will substantially raise the demand, and efforts are also being made to increase the output of technicians to give adequate support to the engineers.

An official survey of graduate engineer employment in 1962 yielded the following main conclusions.[2]

'(i) . . . 28 per cent of the engineering graduates who took their graduation degree more than a year ago, were still unemployed.

'(ii) The incidence of unemployment was very much higher among mechanical and electrical engineering graduates than among civil engineering graduates. Nearly 44 per cent of the mechanical and electrical engineering graduates who took their graduation degree more than a year ago were found unemployed on the date of the survey. Keeping in view the small annual out-turn of engineering graduates in Burma, it is a matter of serious concern that such a large number of engineering graduates should have remained unemployed for long periods.

'(iii) The high incidence of unemployment among mechanical and electric engineering graduates could be ascribed to the lack of diversification in the organization and structure of the economy and to the failure of the technical educational system to adapt itself to the actual needs, conditions and requirements of the industry.

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[1] This suggests that the Burma Research Council has until now not been performing this function.

[2] *Survey of Employment and Unemployment among Engineering Graduates in Burma, Manpower Survey, Project No. 8*, pp. 27-31 (Manpower Information Unit, Directorate of Labour Affairs, The Revolutionary Government of Burma, Rangoon, 1962, mimeo.). The survey covered only graduates of the March 1961 examination of the Rangoon University.

'(iv) The pattern of distribution of 'employed' engineering graduates showed that 60 per cent of them were absorbed by semi-government sector, 27 per cent by government sector and only 13 per cent by private sector. The capacity of the private sector to offer additional employment opportunities to engineering graduates in Burma thus appeared extremely limited.'

In outlining the background and motivations of the graduates, it is also pointed out that the majority of the unemployed were prepared to go to rural and remote urban areas, provided suitable opportunities in their fields of specialization were made available; that most of them were willing to undergo apprenticeship or specialized training at government but not their own expense; that 40 per cent of them were willing to start small engineering or servicing industries if loans up to 5,000 kyats (about $1,700) were provided on personal security; and that it would be worth while to examine the prospects and possibilities of supporting the establishment of such enterprises.

Hunter recommends that: 'At the university level total output is probably sufficient for another two or three years, but distribution by subject could be improved by producing more civil and agricultural engineers, architects, surveyors and quantity surveyors.

'What is necessary above all is practical training. It might be valuable to send at least 20 engineers per annum (including any who may now be unemployed from earlier output) for two years' practical experience in any developed country[1] and also to build up some post-graduate specialization. To achieve this, the university output could be allowed to rise slowly from 110 to perhaps 140 per annum in five years' time, followed by a review of needs.'

It is clear that, as recognized by the government, the major emphasis has to be on the expansion of technician and craftsman output and on improving the quality of engineering education and training. Substantial quantitative expansion should preferably have awaited the results of careful manpower studies, but the big 1965 increase in engineering enrolments suggests that already by 1972 the output of engineers will probably reach or even go beyond 250 per year.[2] As a consequence, future problems to face are more likely to be the provision of adequate employment opportunities than a shortage of technologists.

Medical sciences

Courses in medicine, extending over seven years after matriculation, with a minimum qualifying mark of 45 per cent, are now offered by three institutes

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[1] A number of engineering students have in fact been sent abroad for advanced studies and training on government scholarships—305 between 1952 and 1960, of whom 195 had returned by 1960. See pp. 84-6.

[2] Estimated at about 50 per cent of the 1964/65 entry.

TABLE 16. Output of medical personnel by qualifications, 1960-64

Personnel and training institution	Total	1950 to 1960	1961	1962	1963	1964
Doctors (M.B.B.S.):						
University of Rangoon	1 363	746	138	156	170	153
University of Mandalay	77	—	—	26	18	33
TOTAL	1 440	746	138	182	188	186
Nurses:						
Directorate of Health	1 375	916	145	111	139	64
Para-medical personnel:						
Directorate of Health	7 481	4 791	720	599	855	516
Including:[1]						
Dentists	263	34	87	37	62	43
Midwives	3 669	2 338	309	367	408	247
Lady health visitors	717	467	66	43	62	79
Laboratory technicians	55	19	8	2	7	19
Laboratory assistants	116	52	11	27	18	8
Radiographers	8	—	—	8	—	—
Health assistants	853	535	137	—	181	—

1. Details on outputs of other categories have been omitted.

of medicine.[1] Institute I in Rangoon also provides facilities for specialization and diplomas in pathology, anaesthesia and public health. Dentistry is taught at a separate Institute of Dental Surgery in Rangoon. Other para-medical personnel, including nurses, receive instruction in courses organized by the Directorate of Health. Unfortunately, except for some output figures (Table 16), no details are available on the diplomas for dentistry, nursing and other para-medical training. There are no facilities for studies toward post-graduate degrees; but some research is carried out by most of the departments—in 1960 ranging from the extraction and testing of the active principles of indigenous medical plants[2] to glaucoma in Burma, and in 1958/59 a total of seventeen research papers were published.

Failure rates in medicine have been surprisingly high; and while medical graduate output expanded very rapidly between 1950 and 1955 from 19 to 102, in the following nine years it only rose to 186 in 1964. Further details of outputs for various categories of medical personnel are given in Table 16.

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[1] Previously, admission to the five-year course of the medical faculties required a minimum pass mark of 45 per cent in the intermediate examination for pre-medical sciences.

[2] Efforts have also been made to revive the indigenous system of medicine, whose practitioners are called *sesayas*. Course syllabuses have been drawn up, and by 1960 18,000 *sesayas* had been registered and eighteen free *sesaya* dispensaries established.

There has been an unexplained decline in the output of nurses and various categories of para-medical staff, and their ratio to the output of doctors has consequently but unfortunately fallen from over 5:1 in 1961 to less than 3:1.

In 1963 there were about 1,600 doctors practising in Burma, which gives a doctor-population ratio of 1:14,000 (considerably lower than a 1957, WHO estimate of 1:8,582);[1] but the actual situation in the country as a whole was still more inadequate, since some 50 per cent of all doctors are estimated to be concentrated in Rangoon. In 1962/63, a number of the smaller township hospitals among the total of 233 (as against the 278 that were to have been established by this time) did not have a full-time medical officer.

The hospitals are supported by rural health centres, whose number, according to the Four-Year Plan, was to be raised from 408 in 1960/61 to around 800 before the end of 1965. Each centre is to be staffed by one health assistant, one lady visitor, five midwives and one vaccinator. While, with recently achieved outputs of these para-medical staff, such basic requirements might perhaps be met, improvement in the provision of nurses is likely to present greater difficulties, since in 1960/61 even Rangoon General Hospital had no more than one nurse to eighteen patients, whereas a ratio of 1:6 is aimed at.

The plan considers doctor requirements only for vacancies in certain categories of public health posts; but Hunter, as a first target, suggests increasing the output of medical graduates to 250 per year, which would gradually raise the force to 3,000: output might subsequently be increased to 350 per year in the ten years preceding 1975, after which a target of 5,000 could soon be reached to give a doctor-population ratio of 1:6,000. Hunter adds that this '. . . rate of progress is determined by the extreme difficulty of finding the experienced and highly qualified teaching staff for a major medical school,[2] and by the time necessary to improve secondary science teaching, without which it is impossible to use university teachers effectively.'

However, with the establishment of a second centre for medical education in Rangoon, and total enrolments reaching 2,454 in 1964/65, it should not be difficult to surpass these targets provided that drop-outs and failure rates could be reduced to a more acceptable level. The major task thus remains more a qualitative one than a major expansion of enrolments. Indeed, even if no more than about 60 per cent of the 438 medical students admitted in 1964/65 pass their finals seven years later, the graduate output for 1971/72 would be over 260, and this number should be augmented by repeaters from previous years completing their work.

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[1] *World Directory of Medical Schools*, p. 42 (Geneva, WHO, 1957). Population 19,242,000; physicians 2,242.

[2] A task which has not been made easier by the departure of many Indian doctors after 1962.

Agriculture and veterinary science

Bachelor of Science courses in agriculture, forestry and veterinary science all now require a minimum of six years' study, including the two intermediate years which had previously to be completed in the university faculties of science before admission to the professional courses. The first are provided by the Institute of Agriculture, Mandalay, the second by the Rangoon University of Arts and Science, and the third by the Institute of Animal Husbandry and Veterinary Science, Insein. Minimum admission requirements for all are a pass mark of at least 45 per cent in the matriculation examination, with science subjects.

Before reorganization in 1964, the forestry course could be completed in three years following the intermediate science examination, and the provision for practical training was inadequate. With the increase of the total period of study to six years, arrangements have also been made to give practical field training from the third year onwards in major forests all over the country. In addition to these facilities, the Institute of Technology offers a six-year degree course in agricultural engineering, several government departments provide secondary-level and specialized post-graduate training in various agricultural and allied fields, and the Forestry Department and the State Timber Board also organize four-year courses in forestry and veterinary science [*sic*], for which candidates are selected from among those who have passed their intermediate with at least 45 per cent of marks.

While, between 1954 and 1964, a major increase in graduate outputs was achieved (see Table 11), from 1961 to 1964, as Table 17 shows, there has been a slight decline, accompanied by a similar decrease at the secondary level. On the other hand, the ratio of outputs of graduates to diplomates and certificate holders improved from 1:1.5 for total outputs until 1960 to 1:3.4 in 1963.[1]

Nevertheless, the total institutional output of agricultural manpower until 1963 shows a ratio of graduate to middle- and lower-level categories (excluding tractor operators and mechanics) that is little better than 1:2; whereas, as Hunter's recommendations for a field target force[2] suggest, there should be at least three diplomates and inspectors and five field staff to one graduate. The difficulties the present situation poses are recognized by the government,[3] but it also means that if the output of graduates is to be increased, that of supporting categories of manpower must be expanded even faster. As it is, in January 1964, due to a stagnation in the creation of additional posts as well

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[1] The year 1964 is not chosen for this comparison since the upgrading of the Agricultural Institute course from two to three years resulted in an abnormal reduction for this year.

[2] But Hunter also adds that ultimately 'the proportion of science graduates who will be concerned with the whole agricultural industry to field staff could well be as high as 3 to 1'.

[3] Also see p. 46.

TABLE 17. Output of holders of agricultural degrees, diplomas and certificates

Institutions and qualifications	Total	Up to 1960	1961	1962	1963	1964
Universities of Rangoon and Mandalay						
B.Sc. (Agr.)	436	306	32	36	29	33
B.Sc. (For.)	151	100	18	19	10	4
B.Sc. (Vet.)	16	—	6	1	4	5
B.Sc. (Seric.)	19	19	—	—	—	—
B.Sc. (Agr. Eng.)	8	—	—	—	—	8
TOTAL	630	425	56	56	43	50
Diplomates[1]						
Agricultural Institute	462	285	61	60	47	9[2]
Certificated[1]						
Veterinary College	288	162	31	27	24	44
Agricultural High School	357	130[3]	66	56	48	57
Agricultural Middle School	173	45	35	42	27	24
TOTAL	818	337	132[4]	125	99	125

1. For admission requirements and duration of courses see Table 7.
2. Last group of students completing studies under the old two-year system, changed to three years in 1962.
3. Includes 17 who passed the veterinary inspector course.
4. In addition, departmental courses of the Directorate of Agriculture trained 286 field men (ten-month course after middle school) and 54 agricultural inspectors (ten-month course after School Leaving Certificate).

as the unwillingness of agricultural graduates to accept field posts, the Ministry of Agriculture estimated that about 20 graduates, 40 diplomates and 350 field staff were unemployed. Furthermore, many graduates of earlier years, having failed to find satisfactory employment in their chosen field, drifted into non-agricultural occupations.

In 1963 the total field force (excluding research) was estimated by FAO at only 60 graduates and 200 diplomates[1]—i.e., about one-tenth of the graduate and less than half of the diplomate outputs up to 1963. Current targets are: one graduate to each of around 300 township areas; one field worker for five villages, of which there are a total of about 15,000; and one inspector for 10 field workers.[1] To support such staff, Hunter suggests a considerable expansion of the target force by 300 graduates and 1,500 diplomates over a period of ten years, which would require the provision of posts rather than a greatly increased output at the higher level. Hunter adds: 'The creation of a first-rate scientific and field advisory staff for agriculture over the next ten years, backed by laboratories and post-graduate work, and extended to forestry, fisheries, animal husbandry, water resources and irrigation, mechanization, plant breeding, pest control and agricultural processing, could well be the highest priority in the planning of manpower and of university and diploma-level institutions. It is probable that no other single investment could do so much to increase economic progress and raise living standards.'

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[1] However, in 1962, according to the *Economic Survey of the Union of Burma, 1964*, the Directorate of Agriculture provided ten-month courses for 286 field men (with the minimum admission qualification of middle school) and 54 circle inspectors (with the minimum admission qualification of the School Leaving Certificate). These trainees were apparently intended for posts not filled by outputs from the agricultural schools and colleges. It may also be noted that Hunter recommends that the training of field men should cover at least eighteen months, and that a good proportion of it should be given in adequately practical conditions.

Recognizing the basic importance of research for agricultural development, the Four-Year Plan also had proposed establishing a second research institute at Kyaukse, as well as speeding up the completion of the Gyogon Agricultural Research Institute—first proposed in 1965 but held up due to shortages of finance—a forest research institute and a veterinary research institute. The Gyogon Institute is now functioning; and in 1963/64, supported by thirteen Central Agricultural Experiment Stations, it concentrated its research programmes on four main projects: breeding of better crop varieties; efficient use of chemical fertilizers and manures; better methods of crop production; control of crop pests and diseases. Its research facilities, in addition to agriculture and agronomy, also cover such basic fields as soil chemistry and physics, botany and radioisotopes.

The other institutes have not yet been established, but plans for the forest research institute have been drawn up with the assistance of FAO experts, and a plan outline had in principle been accepted by the government in 1961. Proposing to conduct research on methods of protection, maintenance and improvement of forests and regulation of yields and extraction, the institute was to be manned by staff trained or in training abroad.

It appears a pity that, while co-operation between the proposed institutes had been stressed, particularly for agriculture, recent programmes have apparently not considered the desirability of co-operation between these and the relevant university divisions, now functioning as the Institutes of Agriculture and Veterinary Science and the Forestry Department of the Rangoon Arts and Science University. If this means that teaching and training will remain isolated from research work, a review of the situation is surely essential.

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[1] Three hundred graduates, 3,000 fieldmen and 300 inspectors.

Education and teacher training

University-level courses in education and teacher training are provided only by the Institute of Education, formerly a faculty of the University of Rangoon. Until 1964, the following qualifications were awarded, entitling holders to become senior assistant teachers in high schools:

B.A.(Ed.): a two-year course following the intermediate arts or science examination. Since in the past a considerable proportion of the high-school teachers were insufficiently qualified (see p. 45), a number of such teachers in service were encouraged to take up the course by qualification grants for acquiring professional skills by special entry and by training bursaries.[1]

Dip.Ed.:[2] a one-year course for those who had already taken a first degree in arts or science.

B.Ed.: a one-year post-graduate course for those who had taken a Dip.Ed. or B.A.(Ed.), specializing in pedagogy and requiring the submission of an original thesis.

Since reorganization, the B.A.(Ed.) is due to become a four-year integral course following on the matriculation examination and has been re-termed B.Ed. The former post-graduate B.Ed. course is apparently to be transformed into an M.Ed. course, possibly extending over two post-graduate years. More emphasis is to be placed on intensified content teaching in such subjects as mathematics, science and English as well as on extra-curricular courses and activities familiarizing teachers with such fields as gardening, co-operatives, community development and folk art and culture. They will be expected to guide the organization of similar extra-curricular activities in secondary schools.

Data on enrolments and output of graduate teachers given in Table 18 show a remarkable increase in outputs, reaching a one-year total of 905 in 1962/63 as against a total output of 931 for the twelve years from 1947 to 1959. A subsequent decline in 1963/64 seems to be only a passing phenomenon, as the enrolments, which had also dropped markedly in this year, are in 1964/65 about 16 per cent larger than in 1962/63. Another notable feature not indicated in the table is that the female percentage of total enrolments has increased from 34.5 per cent in 1960/61 to 57.8 per cent in 1964/65.

The rate of success in the final examinations, ranging from about 92 to 98 per cent, remains the highest for all fields of higher education and contrasts strongly with the low pass rates for arts and science.[3] It might be suspected that perhaps lower standards, maintained in view of the continued urgent demand for teachers, are at least in part responsible; but while the quality may not be all that is desirable, wastage and frustration have here been

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[1] Certain categories of teachers who had served a stipulated period of years were also admitted direct to the second year of the course as internal students.

[2] Also referred to as D.T., i.e., Diploma in Teaching.

[3] See Table 11.

TABLE 18. Enrolments and outputs in higher teacher education and training: (a) outputs 1947-59 and 1959/60; (b) enrolments and graduates 1960/61 to 1963/64; (c) enrolment 1964/65

Class	(a) Graduate output		(b) Enrolments and graduates[1]								Total graduates to 1964	(c) Enrolment 1964/65
			1960/61		1961/62		1962/63		1963/64			
	1959/60	1947-59	Enrolment	Graduates	Enrolment	Graduates	Enrolment	Graduates	Enrolment	Graduates		
B.A. (Ed.);												
Class I			288		446		215		130			244
Class II	349	123	230	225	238	238	452	438	232	213	1 586	122
Dip.Ed.	261	79	88	86	290	256	325	281	205	185	1 148	230
B.Ed.[2]	321	50	61	60	90	85	204	186	238	226	928	261
B.Ed.:[3]												
Class I	—	—	—	—	—	—	—	—	—	—		291
Class II	—	—	—	—	—	—	—	—	—	—		240
TOTAL	931	252	667	371	1 064	579	1 196	905	805	624	3 662	1 388

1. Enrolment figures are for the beginning of the academic year and graduation for the end of it, so that enrolments and graduations can be directly compared for the same year—e.g., in 1963/64, of 238 students enrolled in B.A.(Ed.) II, 226 graduated at the end of this year.
2. Post-graduate one-year course.
3. New two-year B.Ed. course, subsequently to include two intermediate years.

reduced to a minimum, and current efforts to raise standards should, through adequate selection and improved curricula and teaching methods, succeed in raising quality without a corresponding decline in the pass rate.

Presumably on this assumption, it was officially concluded[1] that in 1963: '... the Faculty of Education, University of Rangoon, is in a position to supply [an] adequate number of trained teachers within three years to replace the existing 796 unqualified senior assistant teachers in the high schools. It is believed that this could be done despite the expected increase in the student registrations over the period of [the] next three years.'

Hunter, too, considers that if allowance is made for inevitable but slow expansion of high-school enrolments to about 150,000 in 1972,[2] a total teaching force of about 6,000—at a pupil teacher ratio of 25:1—should be sufficient, and that this could be assured with an average annual output of 480 teacher-training graduates. In view of current outputs there should be no difficulty in achieving this target, even if allowance is made for duplication in output figures caused by a number of B.A.(Ed.) graduates going on to higher studies being counted a second time as an addition to the teaching force in the form of B.Ed. graduates. Indeed, leaving out the B.Ed. graduates altogether, the remaining graduate output in 1962/63 had reached the figure of 719 graduates, which is about 50 per cent over the proposed target.

On the other hand, if the pattern of increases in high-school enrolments between 1958/59 and 1961/62 continues—ranging between 8 and 9 per cent annual cumulative growth—enrolments by 1971/72 may come to anywhere between 190,000 and 255,000.[3] The first possibility, requiring a target teaching force of 7,600, would not involve a big increase in output—an annual average of 540. But the second, implying a target of 10,200, would involve attaining an average annual output of 900 graduates. The manner in which enrolments in 1964/65 have been substantially increased—suggesting a possible output of over 770 at the end of 1964/65[4]—seems to indicate that the government is preparing to deal with a substantial expansion of high-school enrolments. Since, apart from the matriculation year, the total period of schooling covered is only nine years, it is difficult to question such a policy or suggest that enrolments should be restricted through rigorous selection after middle school, particularly if an adequate supply of teachers can be made available and school building and equipment keeps pace.

While some research has been undertaken by B.Ed. students and by the staff, the need for expanding and intensifying educational research has been recognized in the past. In *An Advisory Report on Educational Problems in Burma and Related Needs for Assistance*, University of California Professor John U. Michaelis gave first attention to proposals for a National Educational Research Council working in co-operation with what at the time was still the Rangoon University Faculty of Education.[1] 'Interest from many different quarters has been shown in the proposal...' Professor Michaelis indicates: 'The Minister of Education, the Dean of the Faculty of Education and various members of his staff, individuals in the Secretariat and the Directorate of Education, and the Head of the Psychology Department all agreed that the basic idea was sound and that much benefit should result from the establishment of a research council. Each of them expressed a willingness to co-operate in establishing a center and to participate in its operation.'

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[1] *Economic Survey of the Union of Burma, 1963*, op. cit., p. 137.

[2] The premises are that in 1961/62 there were about 2,000 qualified senior assistant teachers, of whom in ten years about 800 would be lost at 4 per cent wastage per year.

[3] See Table 2. The higher growth rate and enrolment figures depend on taking the higher enrolment figures given in brackets for 1959/60 to 1961/62.

[4] At a pass rate of about 90 per cent and including B.Eds.

Although apparently no substantive steps have yet been taken toward the establishment of such a council or the conduct of the kind of co-ordinated research it is intended to sponsor, the following objectives of the reorganized system of education recently stressed by the Education Minister, Colonel Hla Han,[2] indirectly underline the importance of such a development:

'(5) In order to get qualified teachers, priority should be given to research work to keep the qualifications of the teachers improving. The research must be of such a nature as would be of help in solving the problems arising out of the building of the socialist system.

'(6) The present teaching methods should be re-examined and better and more proper methods adopted in future....

'(10) To try to give post-graduate courses in the country instead of sending students abroad.'

STUDENTS

Although no specific surveys of the socio-economic backgrounds of university students are available, most of them appear to come from upper income groups in urban areas since high schools are restricted to the major district towns. In 1963 only about 4.5 per cent of the relevant age group was enrolled in high schools: in 1964/65, of the 505 students admitted to the Rangoon Institute of Technology, 192 were from Rangoon, 200 from large towns and 113 from small towns, and as many as 260 came from private or mission schools. Further evidence in this direction is also suggested by the occupational choices of students determined in a sample survey (covering 817 students) by two American university teachers,[3] who also calculated that

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[1] John U. Michaelis, *An Advisory Report on Educational Problems in Burma and Related Needs for Assistance*, p. 5 (Rangoon, The Asia Foundation, June 1961, mimeo.).

[2] Colonel Hla Han, op. cit., p. 1.

[3] J. Silverstein and J. Wohl, 'University students and politics in Burma', in *Pacific*

TABLE 19. Occupational choices of students in percentages of a sample survey, 1963

First employment choice	Rangoon University	Mandalay University	Over-all percentage
Government employment	27.8	27.5	27.7
Private-commercial	25.2	25.8	25.5
Professional	25.4	19.4	22.8
Scientific	10.3	10.6	10.4
Agriculture	1.5[1]	2.5	2.0
Others	5.5	4.7	5.1
No response	4.4	9.4	6.6

1. The figure of 11.5 appearing in the original text is an obvious misprint.

56 per cent of the students came from one of six major cities (see Table 19).

The authors further conclude that: 'These figures not only support the conclusion that the students will gravitate to urban areas but also point out the continuing low status which manual labour holds and the strong urge to seek careers in the same fields chosen by the generations before them. The heavy emphasis placed on high status professional, entrepreneurial, and government work reinforces the observation that the students see university training as an avenue to upward social mobility and economic security.[1] With jobs diminishing in these categories of work, the student faces a dilemma: to continue in this direction with small prospects of finding a good job quickly, or to alter his values and look to a future in agriculture or engineering[2] which have more opportunities.'[3]

However, the government itself has for long been conscious of the need to provide scholarships and other incentives both to widen access to higher education and to make vocational studies and occupations more attractive. In 1959 a government-appointed Education Enquiry Committee accepted[4] 'the principle that the State should look after the education of some able but poor pupils and students by instituting a large number of scholarships and stipends parallel to the fee system'.

Information on the number of scholarships subsequently awarded at various levels is not available, but for 1964/65 the educational budget

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Affairs, Vol. XXXVII, No. 1, Spring 1964, p. 56 (University of British Columbia, Vancouver, 1964). Percentages given in Table 19 in a few cases vary slightly from the original on the basis of recalculation from absolute figures of the sample returns.

[1] Scarcely an unreasonable desire.

[2] But see pp. 66, 71 and 81 on graduate unemployment in engineering and agriculture.

[3] 'University students and politics in Burma', op. cit., p. 56.

[4] *Education Enquiry Committee, Interim Report*, op. cit., pp. 53-4.

included a provision of nearly $1.6 million for financial aid to students, amounting to 6.3 per cent of the total budget, including 2 per cent scholarships, 4.2 per cent for stipends and 0.1 per cent in the form of free tuition.

Some residential facilities are provided by all institutions of higher education, but the demand has far outstripped accommodation: two students occupy 10 by 10 ft rooms meant for only one; as many as six students occupy rooms of 10 by 20 ft, and ten to twelve first-year arts and science students are housed in hutment dormitories. First priority is given to out-of-town students, and the better class of accommodation is normally reserved for senior students. In 1962/63 the University of Rangoon provided accommodation for nearly 5,000 students, including 1,500 women, in twenty hostels, forming a little over 40 per cent of the total enrolment. Since then, to reduce overcrowding and cope with expanding enrolments, a project for ten hostels to house about 1,400 has been completed and a large government hotel near the university has been converted into a hostel for 100 women students of the university and the Institutes of Economics and Education. At Mandalay, too, about 40 per cent of the enrolment—1,354 students, including 515 women—were in 1962/63 accommodated in five hostels.

Hostel charges amount to about 550 kyats ($110) per academic year, including a 10-kyat entrance fee and monthly charges of 14 kyats for room and 43 kyats for board. As the cost of food and services for the mess system is estimated to come to 49 kyats per student per month, the government subsidizes this provision to the extent of 6 kyats per month for each resident student.

Until recently, students played little part in the administration and operation of the hostels. Now hostel welfare committees are being set up which will include student representatives, and student working groups are to be organized from time to time to ensure the maintenance of the hostels. With the hostel warden acting as chairman and a student representative as secretary, each of the welfare committees is to have subcommittees for academic matters, health, recreation and mess. In Rangoon it has recently been decided to centralize all food purchases and storing under the supervision of the staffs of the university and the institutes. Subsequently, in December 1964, one of the hostel mess subcommittees decided that teachers and students would personally take delivery of their share from the Central Foodstuffs Distribution Depot and participate in the preparation of the meals, and it was found that they could produce about double the usual quantity of food with the same quota of rations.

Student activities

Until recently, while both universities had student unions, there was no national union of university students. However, many students were leading members of the All Burma Federation of Student Unions (ABFU), which had a very substantial secondary-school membership, the Student Unity Front (SUF), an extreme left-oriented group, or other specialized political or religious organizations for youths and students. Until 1958/59, the university students' unions, particularly in Rangoon, were powerful groups organizing their own activities, their finances assured by an annual 11-kyat (about $0.60) membership fee collected from each student by the university administration on behalf of the union. However, while these unions supported various cultural activities and organized student welfare projects, such as canteens, book and stationery stores, they were primarily oriented toward what they considered students' rights. Most creative or recreational extra-curricular activities were carried out by various associations and societies, ranging from an association of fine arts, music and dancing at the Rangoon Faculty of Science [*sic*] to athletics and religious associations.

The pattern of the student unions and their attitudes and activities are derived both from the struggle for independence, and from a combination of outside influences and sincere dissatisfaction with varying aspects of the academic provision. The latter grievances were at least partly recognized by educational administrators but, with an inevitable shortage of facilities, they could not be remedied without reforms that temporarily created additional difficulties for the students. Increasing hostility between the student organizations and the administration and of repeated demonstrations and strikes finally reached tragic and explosive dimensions in July 1962, when the military felt obliged to fire into a crowd of protesting students: in the action several students were killed and the Rangoon student union building was burnt down. The government considered that though the protest was apparently directed at certain new university regulations, it was politically inspired by anti-government elements; but it appears difficult to accept this as a full explanation. Silverstein and Wohl in their study[1] point out that 'the two—the university students and the student political leaders—came into conjunction only when a student issue developed; and then, it had to have direct effect on the university students to unite them to common action'. Nevertheless, at the time General Ne Win said, 'I have no alternative but to meet *dah* with *dah* and spear with spear',[2] and the Rangoon University Student Union was banned.

Subsequently, recognizing that strong disciplinary measures alone would not succeed in securing student discipline, Colonel Hla Han, in April 1963, speaking for the Revolutionary Council, announced that 'we recognize the principle that there should be a student organization devoted to affairs of students' and promised that the government would reconstruct the union building. Addressing freshmen at the opening of the Rangoon University of Arts and Science in November 1964, Lieutenant-Colonel Ye Tun, a member of its Administration Board, asked the students to behave like responsible people, and added that 'we on our part will always deal with you as grown-up persons'.

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[1] 'University students and politics in Burma', op. cit., pp. 63-4.

[2] *The Nation*, 9 July 1962.

Counselling and guidance

It was partly due to problems of student discipline that questions of student counselling received specific attention soon after independence, when proposals for a counselling service at Rangoon University were drawn up in 1953, under instructions of its vice-chancellor, by its Department of Psychology. Due to various administrative delays, the project was not launched until 1958. In succeeding years, apart from individual consultation for about 400 students in 1960/61 and 600 in 1961/62, a number of tests were developed and in 1962/63 the service assisted a team of fifty-nine senior lecturers to carry out a programme of pre-registration counselling for 2,100 candidates for admission.

However, despite the apparent success of this operation, the service did not prove sufficiently influential to prevent student demonstrations from developing into the July 1962 riots. Proposals had previously, in 1958/59, also been made for a programme of more tutorials and guidance of students supervised by a dean of students and full-time hostel wardens, but it seems little was done to carry them out.

With reorganization in 1964, new admissions were accompanied by teachers explaining curricula and study methods to groups of students, and groups of fifteen students were assigned to the personal care of one teacher, who was made responsible for both their academic and their personal welfare, including the maintenance of regular records of their progress. In hostels, wardens and other teachers held discussion sessions with students and tried to lay the ground for mutual trust and contact to deal with any problems that might arise in the future. An emphasis has thus been clearly laid on assuring as much personal contact and consultation between staff and students as the rather poor ratio between them will permit.

The success of the arrangement, it seems, will ultimately depend on how well it is used to develop a sense of academic community and of mutual responsibilities rather than to maintain authority and an externally imposed discipline.

Student health

While Mandalay University has only an out-patient clinic served by a part-time medical officer, Rangoon University has for long had a comprehensive health service, and Mandalay, too, has been planning to establish a service along the lines of Rangoon, including a ten-bed university hospital. The Rangoon University Hospital in 1963, open to all university staff and employees as well as students,[1] possessed four full-time medical officers and one part-time dentist, a twenty-bed ward, and separate out-patient sections for students, staff and children. Students are given entrance health examinations on a voluntary basis, and the service plays advisory roles in relation to nutrition, accommodation, environmental sanitation and physical education. Its annual expenses are met through university and government grants. Colleges and institutes outside Rangoon and Mandalay generally have combined arrangements with a part-time general practitioner and a government hospital, but no health services of their own.

Graduate employment

Recent surveys have shown that there is fairly widespread unemployment not only among arts and science graduates but also among graduates with professional skills. The 1963 Economic Survey[2] observed that various inquiries show that: 'among university graduates, there was sizable unemployment and [it] was more widespread among science, arts, commerce and agricultural graduates than among medical, forestry or veterinary graduates; the majority of the unemployed were in the age group of 21 to 27, were unmarried and belonged to low income-group families (250-500 kyats per month);[3] that most of them were looking for white-collar jobs and were not inclined to settle in business, profession or agriculture—including even the unemployed agricultural graduates.[4] The income expectations of unemployed graduates was between 300 and 400 kyats per month.... The rapid expansion of education since the fifties, coupled with increasingly limited employment openings for educated persons, has been primarily responsible....

'The problem ... is likely to be solved, however, as the rate of economic growth is accelerated by proper planning and effective implementation coupled with a proper co-ordination of the educational programme.' This, incidentally, is a particularly clear example of educational expansion isolated from economic development; and, indeed, unless the latter recovers from its recent recession, the situation will become even more bleak for future graduates.

One concrete measure, taken recently by the government to deal with graduate unemployment, stresses the difficulty of the problem. Over 400 men and women graduates had in 1964 responded to a government invitation to register themselves for employment. However, when the government offered them positions as primary assistant teachers, only 95 accepted the offer,

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1. Students of the Medical Faculty, however, made use of the facilities of the Rangoon General Hospital, which also served as its teaching hospital.
2. *Economic Survey of the Union of Burma, 1963*, op. cit., pp. 58-9.
3. 'Low' obviously not in relation to national averages, but with respect to the top income-group graduates.
4. Also see p. 71.

although there were good opportunities of becoming head teachers after a short period of training and teaching.

STAFFING

Today, as in the past, the main hierarchy apparently consists of professors, who are holders of a chair; lecturers, who are responsible for delivering most of the lectures at the bachelor level and assisting professors in guiding the work of assistant lecturers; assistant lecturers, who are largely responsible for lecturing to intermediate classes and supervising the work of tutors/demonstrators;[1] and these tutors who help students in organizing their studies, conduct and mark academic exercises and practicals. Owing to a shortage of senior staff, some tutors/demonstrators are appointed as lecturing tutors/demonstrators—with a gradually increasing load of lecture duties—at the intermediate level, and for this they receive additional emoluments.

While on the whole professors have been appointed at a fairly young age (in comparison to practice in other countries) and so have had only limited time to gain experience, they generally hold doctorates from reputable universities abroad. They are obliged to shoulder heavy administrative duties. Lecturers are still expected to have at least a master's degree and preferably a doctorate; but according to a public notice announcing vacancies in 1964, it appears that honours degree holders may be appointed as assistant lecturers, whereas previously the master's degree or its equivalent was a minimum requirement. The practice of using the more able post-graduate students as assistants has apparently been tried to a limited extent by appointing selected master's or final-year honours degree candidates as part-time tutors or demonstrators. Most other university teachers are not only full time, but by law debarred from undertaking any remunerative outside work without special permission—part-time professors and lecturers, at least until 1958, existed only in the Rangoon University's Faculties of Medicine and Law. While formerly all senior appointments were made by the university councils in consultation with the senate, now they are appointed directly as civil servants by the Ministry of Education, in consultation with the relevant institution's rector. Appointments of tutors/demonstrators were, and apparently still are, made by the heads of institutions of higher education.

While salary scales at the assistant lecturer and lecturer levels, together with housing and other allowances, are reported to compare favourably with other civil service scales, the provision for professors appears inadequate, especially when it is remembered that normally they are not permitted to accept any external remunerative work. Even Britain and America are in no position to demand that their professors should give all their time to their

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1. A junior category not to be confused with the senior teachers recently made responsible for the academic and personal welfare of groups of fifteen students each.

universities; though Indonesian practice perhaps goes too far in the other direction. Indeed, Burma itself has apparently recognized the expediency of such a measure in the field of medicine, where in 1957/58 there were seven part-time to two full-time professors.

Furthermore, since there is a predominance of largely inexperienced tutors/demonstrators among the staff (more than half the total), combined with a serious shortage of both lecturers and assistant lecturers, it would seem that, in so far as financial conditions or shortages of qualified persons are responsible for this, more general use could be made of the system of part-time teachers. Particularly at the tutor level, an extension of the already tried procedure of employing senior honours and post-graduate students on a part-time basis might have educational (including the promotion of research) as well as financial advantages. The latter, because of the large numbers involved, could lead to significant savings in recurrent costs, which should facilitate the appointment of a larger number of full- or part-time assistant lecturers and lecturers.

EXTENSION WORK

With the exception of the evening classes at Mandalay (p. 55), short training courses at the State Agricultural Institute, and the indirect implications of certain types of field assignments, extension work so far has been carried out more in association with institutions of higher education than by the institutions themselves. Thus the former Adult University had links with the University of Rangoon, some of whose teachers taught courses at the Adult University, and its students were prepared for examinations of the University of Rangoon.[1] Agricultural extension was directed by the Department of Agriculture and the Gyogon Research Institute, with the assistance of regional experiment stations, but the post-secondary Agriculural Institute gave its full co-operation in training personnel for these jobs. On the other hand, apart from field work, the former Agricultural Faculty at Mandalay has apparently not been involved very intimately in the planning or execution of extension work.[2] What is today the Institute of Education helped by arranging in-service training programmes for high-school teachers; but, institutionally, it has remained largely aloof from teacher training at other levels. The recent (1965) establishment of free evening classes for those who have been required to leave high school after failing its examinations thrice is, likewise, almost entirely an operation of the Directorate of Education or of a State education department.

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[1] After reorganization, when the private university was renamed the Workers' College, under direct government control, the link with the Rangoon Arts and Science University was strengthened in the sense that the latter's teachers took on teaching responsibilities at the former on a more formal basis under government approval.

[2] It is tempting to conclude that this partly explains the reluctance of even agricultural graduates to undertake jobs with a significant element of manual work (see p. 71).

However, since the 1964 reorganization, it may well be expected that both institutions and their students will be expected to play a more direct role in extra-mural and extension work. The slogan of an 'education for socialism', no matter how understood, would certainly seem to demand it.

One sign of a new policy may be found in a January 1965 announcement that the Ministry of Finance and Revenue had called for 1,000 volunteers from among students of the Institute of Economics and second- and third-year students of Rangoon University to go to the villages during the summer vacations 'and help the agriculture and multi-purpose co-operatives in the keeping of accounts and help in the costing of products in mills and factories and preparing stock inventories. Students who volunteer for the above service will be given necessary training for ten days. . . .'[1]

On the other hand, the rational expansion and co-ordination of such activities—including more direct and collaborative arrangements between the higher education institutions (particularly the institutes) and government enterprises for rural development and agricultural extension and research—will surely require a significant increase in the senior teaching and research staff at the institutions of higher education. If this is not done, it would be unwise to burden the present hard-pressed staff of these institutions with additional responsibilities. In brief, there is tremendous scope in available facilities, students and spirit to make a major impact on development needs, but nothing much can come of this if ways of finding the staff to take advantage of these potentials are not found.

STUDY ABROAD

As Table 20 shows, Burma has in recent years been sending a considerable number of its students for study abroad on government scholarships. Unfortunately no recent detailed breakdowns on study abroad are available; but partial data on State scholars sent abroad between 1951/52 and 1959/60 are given in Table 20, and a list of countries in which Burman students were studying in 1959/60 is given below. It is not clear under what conditions State scholarships for study abroad are awarded and what the bonding conditions are; but it seems that most candidates must hold at least a first degree, even if they are government servants.

The rate of return appears to have been good for all subject fields except science and engineering (and 'others'). It may be conjectured that, in these cases, a number of students realized that employment opportunities awaiting them on their return home were discouraging in comparison to appointments and other conditions of work they could secure abroad. Thus, for instance, an

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[1] *The Working People's Daily*, 16 January 1965, p. 1.

TABLE 20. Number of Burman nationals sent abroad for advanced studies and training abroad under the State scholarship scheme

Subject	Total returned	Total sent	Annually sent abroad, 1951/52 to 1959/60								
			1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60
Arts	34	51	15	16	5	—	1	1	2	2	9
Science	50	92	16	17	17	7	7	2	11	7	8
Engineering	195	305	31	62	115	13	24	14	16	12	18
Education	14	16	6	1	6	—	—	2	—	—	1
Social sciences	38	47	12	10	12	4	3	1	3	2	—
Medicine	76	98	9	27	17	13	7	10	8	3	4
Agriculture	22	25	3	6	13	—	—	2	1	—	—
Forestry	4	5	1	—	1	—	—	1	2	—	—
Others	9	33	1	3	12	—	1	—	4	2	10
TOTAL	442	672	94	142	198	37	43	33	47	28	50

engineering student who returned after taking a bachelor's degree in electrical engineering at a United States university found himself accepting the position of a primary schoolteacher in the absence of any other suitable opening.[1] The situation in engineering must, however, have been made particularly difficult when a contingent of no fewer than 115 students and trainees were suddenly sent abroad in 1953/54. The need for more careful selection and distribution in the various fields of engineering seems obvious, especially as those selected are not only awarded foreign exchange, but government scholarships as well.

Countries in which Burman students—including those abroad on private initiative—were studying in 1959/60, according to a Unesco survey covering eighteen countries,[2] are: U.S.A., 196; India, 102; United Kingdom, 74; Australia, 41; Japan, 15; Others, 18; total, 446.

The large numbers studying in the United States undoubtedly included many students who received scholarships from American foundations and institutions of higher education. The popularity of India may be partly ascribed to a combination of two factors: the low cost (of study and living expenses as well as travel), and the Indian origin of a good proportion of these students.

EDUCATIONAL DEVELOPMENT OBJECTIVES AND FINANCE

PLAN OBJECTIVES FOR EDUCATIONAL DEVELOPMENT

Educational policy has been carried out in accordance with a series of three Four-Year Educational Plans starting in 1952. The third, incorporated in the over-all Second Four-Year Plan for the Union of Burma, 1961/62 to 1964/65:[3] '. . . consists of a twelve-point programme to effect the consolidation of gains achieved during the previous plan, the quantitative expansion of facilities and services and the qualitative improvement of education. The main features of the plan are the expansion of facilities for compulsory primary education, the consequential expansion and further provision of secondary educational facilities on account of the expansion of primary education, and with a view to introduce free and adequate secondary education by 1977, the provision of increased facilities and better preparation for vocational education, and the improvement of the supply and qualification of teachers'.

While the importance of developing and improving vocational education was thus recognized in the plan, and is not an entirely new aspect in the

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[1] *Forward*, Vol. III, No. 3, 15 September 1964, p. 9 (Rangoon, Directorate of Information, 1964).

[2] Unesco, *Study Abroad, XIII*, 1962 (Paris, Unesco, 1961).

[3] *Second Four-Year Plan*, op. cit., p. 154.

Revolutionary Government's plans for socialist education, the plan also showed a wisely cautious approach towards quantitative expansion. Finding that previous plans had led to producing more school buildings than teachers to man them adequately, the plan uncompromisingly adopted the principle: 'teachers first, school buildings next'. Middle schools, too, were to be established in a measure commensurate with the availability of finance and teachers—no more than one to fifteen primary schools. High schools were to be limited to major towns with adequate transport facilities for easy access from surrounding areas. Finally, 'in order to prepare realistically a large number of Burmese youths for immediate productive capacity, and to reduce the pressure on academic-type centres of higher learning, there will be brought about a revision in the direction of the school programmes'.[1]

Primary education

Both the plan and subsequent revisions aim at introducing four-year compulsory and free primary education within ten years from 1961. However, this is to be done by making fuller use of monastic facilities and by the four states and local communities meeting a greater share of the cost. An extension of the period of compulsory education is to be considered only after successful attainment of the first objective, perhaps by 1977. Estimates on the number of primary schools and teachers to be provided in the period have been revised downward due to expectations of a lower population increase,[2] from 750 schools per year, at 100 pupils per school, and about 1,500 teachers[3] per year, at one teacher to fifty pupils, to 600 schools each year, at 70-80 pupils per school, and 1,000 teachers annually, at a pupil-teacher ratio of 40:1.

Secondary education

Finding that, in 1960, there were 45 high schools out of 273 operating on a double-shift system and that 'long idle daylight hours out of schools have adversely affected the conduct and character of these children',[4] the plan gave first priority to meeting existing shortages by reconverting these schools to full day schools. Side by side, high schools incorporating the middle level were to be furnished with separate facilities for the latter or relieved by upgrading nearby primary schools to the middle level. Five new teacher-training institutions to be established in support of the crash primary teacher-training programme, were later to be converted into high schools. And since it was considered impossible to establish secondary schools in every town, the policy adopted was to upgrade some primary schools to middle schools and the latter to high schools, while avoiding an overlapping of schools in the same areas. Accordingly, it was estimated that in the plan period it would be necessary to set up ten new high schools each year (a total of forty) and about sixty middle schools annually (a total of 238). Emphasis was also laid on a programme of retraining at least 50 per cent of an estimated 85 per cent (1,479) of insufficiently qualified high-school teachers out of a total force of 1,725: an average of about 60 graduates and 100 undergraduates per year, with a total output of 725 qualified teachers in the plan period.[1]

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[1] ibid., p. 155.

[2] The plan had assumed a population growth of 2.3 per cent per annum; the more recent estimates suggest about 1.8 per cent per annum.

[3] Not including the output of crash programmes to train unqualified teachers, at the time of the plan estimated to number 11,542, with a proposed retraining programme producing 2,000 one-year trained teachers each year.

[4] *Second Four-Year Plan*, op. cit., p. 155.

There is thus throughout a consistent, even if modest, practical consciousness of giving priority to the removal of serious obstacles to the maintenance and improvement of quality under difficult financial limitations. The need for expansion is recognized, but given second place.

In recording the importance of developing vocational education too, attention is focused on the expansion of facilities and incentives for agricultural education. 'It is proposed to tie-in attendance at these schools with various benefits. For a cultivator family, one of whose members has graduated from an agricultural high school and who has returned to work on the land, there will be offered increased agricultural loans, improved seed and fertilizers.'[2] On the other hand, the planners stressed that they found it extremely difficult to propose reasonable development goals for vocational/technical education in the absence of adequate manpower data, and they looked to the results of the proposed country-wide census for 1963 to remove this deficiency and offer guide lines for further progress.[3] Finally, pointing out that various government departments also arranged technical training courses (also see p. 47), the plan advocated that: 'The courses offered and the facilities provided at these institutions should be co-ordinated and expanded in a comprehensive programme to meet the country's needs which would increase with the progressive implementation of the plan. It is especially important to view the problem of technical training in the perspective of long-term requirements. Steps will be taken during the present plan period to meet requirements which will make themselves felt only in the next plan period.'[4] In practice, the lack of balance between the requirements of actual development projects and technical/vocational outputs, has led to serious unemployment difficulties in various fields.

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1. Evidently more trainees would have to be catered for in certain years to reach the target output; for otherwise, total output in four years would amount to no more than 640.
2. *Second Four-Year Plan*, op. cit., p. 156.
3. In so far as results have since been published, it had not been possible to secure these at the time of writing.
4. *Second Four-Year Plan*, op. cit., p. 158.

The difficulty has been caused not only because of the lack of manpower data, but also because, while in the educational field, the major targets have been realized, this has, except for the first two years, not happened in the general development of the economy, which General Ne Win himself in January 1966 frankly characterized as being 'in a mess'. Efforts are being made—and priority must clearly be given to enhancing their effectiveness—to absorb the educated/skilled unemployed in temporary positions whose remuneration and status, though modest, are not entirely frustrating. If this effort succeeds even partially, subsequent economic development may find a considerable asset in the immediate availability of such manpower, when the initial effort would not appear entirely misplaced.

Higher education and research

Very little is said about the development of higher education, indeed all that the plan says under the heading of universities is: '12. The Four-Year Plan provides kyats 109.00 lakhs[1] for grants to the Rangoon University and kyats 78.00 lakhs to the Mandalay University. This will be used to continue the construction of college buildings at Moulmein, Bassein, Kyaukpyu, Magwe, and Rangoon and Mandalay universities. Provisions include the construction cost of buildings for the new colleges at Myitkyina and Taunggyi.'[2] It appears that, at the time of drawing up the plan, the planners were, in the absence of data, not prepared to commit themselves to more than a general financial provision to cover a moderate expansion of enrolments, the development of branch colleges and the establishment of two new colleges (which has since taken place).

But, on the issue of research, the plan is emphatic: '26. The key to progress is research, for it can open the door to increased national production and to the greater utilization of natural raw materials. For instance, the Union has one of the world's largest reserves of bamboo forests, sufficient to supply the whole region with its requirements of cellulose pulp according to a recent ECAFE survey. Yet, with the exception of a few bamboo fishing rods, no export of bamboo products such as pulp or paper is at present being made. Research leading to the setting up of large and small bamboo pulping plants would result in a large increase in the national income as both the raw material resources and the market allow for a kyats fifty crores[3] (over $100 million) per annum industry.'[4] Plans for the establishment of additional research institutes have already been indicated (pp. 65 and 72), but it is perhaps appropriate once again to stress that the emphasis on applied research and practical results, with no guide lines for co-operation between

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1. 1 lakh = 100,000.
2. *Second Four-Year Plan*, op. cit., p. 156.
3. 1 crore = 10,000,000.
4. *Second Four-Year Plan*, op. cit., p. 159.

this and basic research at the universities is unfortunate. However, after underlining the present importance of applied research and its concentration on practical results at a time when resources can be ill-spared, the plan also states that the 'Government will study the need for a National Scientific Research Council to co-ordinate research activities in all fields, formulate a national research programme and to allocate resources.'[1]

FINANCING EDUCATIONAL DEVELOPMENT

Apart from a few details on educational expenditure in budget estimates for 1964/65, given in Table 22, only general indicators of educational expenditure in relation to total national expenditure and income are available: these are given below (Table 21).

Since 1955/56 the percentage of total recurrent expenditure allocated to education has remained more or less constant, the latter allocation's percentage to national income being held well below 3 per cent. While it is to be noted that this only includes public expenditure and also excludes capital investment and individual state (as distinct from national) expenditures on education, there still seems to be room for a greater effort in relation to educational development—there are other developing countries which have allocated nearly 20 per cent of their national budget to it.

While Table 22 provides an indication of the national education recurrent expenditures budgeted for 1964/65 in relative terms by level, it is not possible

TABLE 21. Pattern of educational expenditure in relation to total national expenditure and income, 1952/53 to 1964/65 (millions of kyats)

Year	National income	Total national expenditure	Educational expenditure		
			Amount	Percentage of national income	Percentage of national expenditure
1952/53	...	963.7	69.4	7.2	
1955/56	...	1 066.7	112.4	10.5	
1957/58[1]	4 527	1 313.3	130.0	9.9	2.9
1959/60[1]	4 920	1 319.5	134.0	10.2	2.7
1962/63[2]	8 111	...	157.8[3]		2.0
1964/65	...	...	204.5[4]		

... Data not available.
1. National income.
2. Gross domestic product at constant 1961/62 prices.
3. Actual.
4. Budget estimate (exact figure, 200,554,380 kyats).

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[1] ibid., p. 160.

TABLE 22. Budget estimate for recurring expenditure in percentages by level and type of education, 1964/65[1]

Level and type	Main	Detail
Administration	6.9	
Ministry of Education		0.2
Higher education		*3.5*
General education		3.1
Vocational education		0.1
Physical education		0.003
Foreign language		0.01
Instruction	85.8	
Higher education		*8.0*
Secondary education		32.6
Primary education		41.8
Vocational education		2.1
Other		1.33
Financial aid to students	6.3	
Scholarships		2.0
Stipends		4.2
Free tuition		0.1
Libraries	0.5	
Research	0.1	
Other	0.4	

1. Total recurrent expenditure 200,554,380 kyats.

to calculate *per capita* costs since corresponding enrolment data are either unavailable or ambiguous.

The concentration of expenditure on primary education conforms to the usual pattern for the region, and indeed elsewhere as well; but if other data are taken into account, it seems to have steadily increased from about 29 per cent of total educational expenditure in 1951/52 to no less than 87 per cent of it in 1959/60, according to the *Report on Over-all Educational Planning in Burma.*[1] Despite recent caution on quantitative expansion, the cost of primary education growth has eaten heavily into the meagre resources available. For the rest, so far as instructional expenditure is concerned, there seems to be a fair balance between the various categories.

Finally, it appears doubtful whether research has received the treatment that might have been anticipated from all that has been said about it in the plan and subsequently. The allocation, however distributed and used, cannot possibly be expected to go far—0.1 per cent or $40,000.

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[1] op. cit., Annexure B, Table 1.

Thailand

BACKGROUND

LAND AND PEOPLE

Called Muang Thai, 'land of the free', the Kingdom of Thailand, extending over some 200,000 square miles, may be likened in shape to the head of an elephant, with one ear pointing north along the upper border with Burma, the other north-east, flanked by Laos and Cambodia, and a trunk reaching down south between the Andaman Sea and the Gulf of Siam to merge into the Malay Peninsula.

Appropriately forming the head, the great central plain of the River Mae Nam Chao Phraya (the mother of waters in chief), fed by four tributaries, is the heartland of the country. It covers no more than 25 per cent of the total area, but contains somewhat over 40 per cent of Thailand's population as well as its capital, Bangkok, 'city of angels', which forms not only the political, but also the social, cultural, commercial, and growing industrial centre of the nation. It is in this area too that the most intensive cultivation of rice—the country's staple food and chief export—takes place, making Bangkok a cosmopolitan city surrounded by paddy fields and villages.

The north comprises rice-growing alluvial valleys divided by high, thickly wooded ridges with forests of teak and resinous trees. Chiengmai, the site of the first university founded outside Bangkok, is the largest city in the area.

The north-east, with its relatively unproductive plateau, mainly devoted to dry rice farming and grazing land for cattle, but also to some cultivation of cotton, mulberry trees for silk-worms and tobacco, is the least productive part of the country, for which a special 1962-66 five-year development plan has been set up in co-ordination with the 1961-66 Six-Year National Development Plan. The people of the north-east, most of them Lao-speaking, although belonging to the broad Thai family, are ethnically distinct from those of the plain. The north-east presents an administrative problem of some magnitude, particularly when poor communications caused the inhabitants

TABLE 1. Population projections, 1960-80[1] (thousands)

		1960	1965	1970	1975	1980
Rate of growth		3.3 %	3.4 %	3.5 %	3.6 %	
All-age totals		**26 990**	**31 777**	**37 537**	**44 579**	**53 291**
School ages:						
7-10	M	1 500	1 826	2 145	2 529	3 038
	F	1 475	1 800	2 112	2 485	2 975
	MF	2 975	3 626	4 257	5 014	6 013
11-13	M	952	1 195	1 435	1 678	1 991
	F	931	1 178	1 415	1 652	1 957
	MF	1 883	2 373	2 850	3 330	3 948
14-16	M	851	1 034	1 282	1 519	1 784
	F	833	1 016	1 266	1 500	1 758
	MF	1 684	2 050	2 548	3 019	3 542
17-19	M	773	901	1 129	1 371	1 609
	F	759	883	1 115	1 356	1 589
	MF	1 532	1 784	2 244	2 727	3 198
20-23	M	932	1 064	1 267	1 589	1 910
	F	927	1 046	1 247	1 577	1 894
	MF	1 859	2 110	2 514	3 165	3 804
School-age totals	MF	9 933	11 943	14 413	17 255	20 505

1. Halvor Gille, and Thip Chalothorn, *The Demographic Outlook of Thailand and Some Implications* (mimeographed).

to feel cut off and neglected: however, an air service now connects Bangkok with Khonkaen, Udorn and Ubol, the main cities of the north-east, railway connexions are being developed, and a trunk road of 791 kilometres connects Bangkok and the Laos frontier via Korat.

The mountainous southern peninsula contains flourishing rubber plantations and rich tin mines. The large majority of the Malay population in Thailand is to be found here, particularly in the Songkhla region, and there is a considerable concentration of Chinese working in the tin mines.

According to the latest Thai census, taken in 1960, there were some 27 million inhabitants, giving a low population density of 135 per square mile. However, for cultivated areas (about 20 per cent of the total area), the density rises to around 600 per square mile.

By far the largest ethnic group, over 80 per cent of the population, are Thais and Thai-Lao subgroups who are said to have migrated from southern China. They freely intermixed with their forerunners—i.e., the Mon of Lower Burma, the Khmer of Cambodia, the Indonesians of the Malay Peninsula and archipelago—and are quite distinct in features, language and culture from the small but powerful minority of Chinese who form around 13 per cent of the population.[1] Malays, whose concentration in the southern peninsula has already been mentioned, and Cambodians form the other significant minorities, followed by a mere sprinkling of Indians, Pakistanis, small tribal groups and others. The Chinese and Malays maintain their own traditions, languages, religions and private institutions and have never become totally assimilated. Over 50 per cent of the Chinese live in the southern part of the central plain and form a significant proportion of Bangkok's population, playing by far the most enterprising role in the commercial life of the city.

Table 1, a projection of age-groups within the range of the educational system, is based on an assumption of constant fertility and moderate mortality decline and basically the same data are included in the Unesco Planning Team report on Thailand. It will be seen that all age-groups listed are expected to double themselves in a period of twenty years.

THE SOCIO-ECONOMIC SITUATION

Basically an agricultural country of small villages, Thailand today is engaged in a steady process of diversifying its economy, advancing with increasing rapidity from a base of subsistence farming to a market economy with a growing capital-intensive sector. In comparison with other countries in the region, it has set out on this road with considerable advantages. While it has, from time to time, been obliged to struggle for its independence, Thailand is the only country in the region which has never known foreign rule. Despite provincial and other diversities, it has maintained a fundamental but unaggressive sense of national identity and unity. By Asian standards it has been relatively prosperous, with no major issues of landless peasantry or, save perhaps in Bangkok, extremes of great wealth and squalid poverty. The land available and the current rate of economic growth have been sufficient to support a substantial population increase without the usual great pressures. However, as the following résumé of its current socio-economic structure and trends will indicate, Thailand too will have to contend with far-reaching problems of social reorganization and reorientation in order to achieve and maintain significant material progress. Apart from efforts to ensure an appropriately trained supply of manpower for development and to take the slack out of underemployment in the agricultural sector, great care will be needed to prevent social change from exercising disintegrating pressures, and in the adaptation of positive values of traditional culture to the needs of a modern society. How far this can be done will, in large measure, depend on the evolving pattern and quality of education.

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[1] The proportion of Chinese nationals is about 1.5 per cent. Some estimates of ethnic Chinese are as low as 5 per cent; the estimate given here is based on Skinner's for 1955, with some allowance for natural growth. G. W. Skinner, *Chinese Society in Thailand, An Analytical History*, p. 212 (Ithaca, New York, Cornell University Press, 1957). Also see V. Purcell, *The Chinese in Southeast Asia*, second edition, pp. 82-4 (London, Oxford University Press, 1965).

Social organization and values

Over 80 per cent of the labour force is engaged in agricultural occupations, and only about 10 per cent of the population resides in towns with more than 5,000 inhabitants. Within—as well as between—these two sectors are a number of marked contrasts.

Bangkok and its sister city Thonburi together form the only metropolitan area in Thailand. The educated élite, many of whom have studied in the West, are concentrated here; the others residing in provincial capitals and district towns are mostly in government service and generally regard themselves as representatives in exile of the high society of Bangkok as well as of the central government. The universities, with two recent exceptions, as well as most industrial enterprises, are concentrated in the Bangkok-Thonburi area. The striking contrasts of wealth and poverty seen in Bangkok are not evident in other towns. While there is a big gulf separating the upper classes of Bangkok from even the surrounding village life, those in other urban areas are much like their village brethren in the simplicity of their ways and wants. What sets the town apart from the surrounding villages is the presence of government officials who generally lead a life apart from the rest of the townspeople.

While Bangkok has influenced the pattern of society in towns, it is far more stratified, with its aristocracy, high government officials, business executives and the most successful of the professional people forming the apex. The Chinese, whose concentration in Bangkok has already been referred to, are fully accepted at this level in their role of businessmen, and it is not unusual for aristocrats to enter joint enterprises with them. However, in the middle class, constituting some 50 per cent of the inhabitants in Bangkok, in which the Thais are mainly lower government officials and professional people, and the Chinese are merchants and small businessmen, there is little contact between the two groups. The lower middle class is comprised largely of craftsmen and skilled workers (mostly Chinese) and the lower ranks of government employees (mostly Thai); the rest of the population is composed of vendors, unskilled labourers, domestic servants, etc. Among this latter group are also a number of countrymen, particularly from the north-east, who come to the city hoping to find employment and settle down or to save enough to return home.

Government services, which in the days of absolute monarchy used to be the only means of social mobility to those not of noble birth, continues to exert a special attraction, and in Bangkok over 25 per cent of the employed labour force is engaged in government service at various levels, including appointments at universities and schools.

In rural areas, the basic social structure and pattern of life varies little, but there are considerable differences in the standards of living found in the rich central plain, the rubber plantations and tin-mining area of the southern peninsula, and the dry north-eastern region. In the first two areas, the impact of the market economy and the growth of an acquisitive social order may be noted. Nevertheless, by and large, rural communities still remain remarkably free of a hierarchical class system and the Thai farmer places little value on material goods beyond meeting the immediate needs of the family, and earning moral and spiritual merit by making his contribution to the support of Buddhist priests and temples (*wat*)—he enjoys his leisure, and his religious beliefs tend to reinforce this attitude.

Over 87 per cent of the agricultural families own their own land, averaging about 6 acres (less than 10 per cent own 24 acres or more), and live in hamlets of 100 to 150 households (*muban*) which generally form part of larger village communities (*tambon*) of up to a maximum of 3,000 individuals. The family unit, too, is small, as couples usually establish their own household. This is often part of a larger family compound and ties of kinship are strongly felt. Village life centres round the temple and religious festivals, and while deference is shown to all elders and and to officials as symbols of authority, the highest respect goes to the Buddhist monks, regarded as the most meritorious as well as the wisest members of the community. Difference of land holdings and other marks of wealth do not confer a high status as such, except in so far as they may be felt to be merited, and therefore the symbol of virtue. Even for authority, including the government-appointed district officer as well as the elected headmen, the farmer has his reservations and is not moved by directives. When it comes to this, he is master of the techniques of evasion. This is again an aspect of the farmer's individualism based on his religious and moral belief in personal merit; others are the informal and free character of village institutions, the permissive nature of the family, and a general friendliness and co-operative spirit in undertaking enterprises of mutual assistance, particularly during the planting and harvest seasons, and in helping to set up new households in the community. It is also the basis for women reaching near-equality with men, although they are supposed to defer to male authority.

In Thai culture as a whole, despite the special characteristics of Bangkok, the noticeable development of acquisitive tendencies and the abolition of absolute monarchy in 1932, three strands still form a common feature among Thais: (a) dedication to a religion, Theravada Buddhism, which even in its simplest forms emphasizes moral excellence, generosity and moderation;

(b) veneration for the King and all authority that stems from and symbolizes him; and (c) loyalty to the family, which forms the nuclear unit of all society, even in Bangkok.

A national average of 51 per cent of the 15+ age group have four or more years of education. This is not far below the metropolitan Bangkok-Thonburi average of 62 per cent, and in comparison with averages for the rest of Asia, is high.[1] When one compares higher levels of educational attainment, marked differences appear.[2] Those who have had more than four years of schooling constitute over 33 per cent of the Bangkok-Thonburi population, but less than 9 per cent of the total population, and only about 5 per cent of the rural population. Percentages of graduates corresponding to these population areas are 0.26, 0.02 and 0.01 per cent.

The economy

While Thailand's population increased by an estimated 30 per cent between 1951 and 1960, at an annual rate rising to 3 per cent, the gross national product (at market prices) nearly doubled during this period at an average annual rate of growth of 5 to 6 per cent, resulting in an increase of about 2 per cent *per capita* income in current prices. Gross national product (GNP) at current prices in 1961 was just under $2,857 million or 7.8 per cent higher than in 1960, and the national income showed a similar increase of 8 per cent. While GNP at market prices increased at 4.6 per cent *per capita* during this period, the real *per capita* GNP increased by only 2 per cent to just under $100 in 1961. The forecast for the 1962 GNP *per capita* at market prices was about $110.[3]

The agricultural sector, headed by rice and rubber, of course remained the largest contributor to GNP and national exports, but although constituting 50 per cent of GNP in 1951, in 1960 it represented only 39 per cent, despite a 5 per cent annual increase in absolute amount. This implies a faster growth in the non-agricultural sector, and it is estimated that the *per capita* GNP generated in the non-agricultural sector is seven to eight times that in the agricultural sector. The annual rate of investment during this period has been nearly 15 per cent of GNP which, if maintained and properly distributed, could ensure an adequate 'take-off' into steadily increasing prosperity.

By far the most important export commodity is rice, followed by rubber (which now comes a close second to it), tin, jute and kenaf, maize, tapioca products, teak, castor seeds, live-stock, and raw cotton. The total of the earnings of all these items forms nearly 85 per cent of the value of all exports, of which rice and rubber alone account for over 56 per cent. However, while productivity was maintained at a fair pace, the decrease in international market prices reduced the value of the main exports in 1961 by nearly $27 million, which was just about equal to the assistance received from the United States Agency for International Development.

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[1] Ministry of Education estimates indicate a literacy rate of 70.8 per cent for persons of 10 years and over.

[2] Based on 1960 Census.

[3] *National Income*, 1963 edition (Bangkok, National Economic Development Board, 1963).

At the same time, the trade deficit increased by nearly six times its level in the previous year to over $91.8 million, but this was also largely due to a heavy increase in imports of machinery, fuel and chemical products, as well as some manufactured goods, amounting to a total increase of over $57.7 million.[1] The total amount of credits obtained internationally and bilaterally in 1962 rose to an external debt of about $200 million.

In the industrial sector, in 1950 there were only 1,800 factories, most of them mere workshops. By 1962, the number of such enterprises—half of which were situated in the Bangkok area, and included many larger establishments—had grown to 16,000 and contributed 15 per cent of the nation's GNP. In addition to the growth of established manufacturing enterprises,[2] new ones include: an oil refinery (with a capacity of 40,000 barrels per day); a $10 million tyre factory; a chemical fertilizer plant, which ultimately is to lower the cost of fertilizer by 40 per cent; large units comprising an iron foundry, a steel and aluminium rolling mill, and a factory galvanizing and corrugating iron sheeting; a pharmaceuticals factory; an automotive assembly plant; the development of an industrial community in the Bangkok area at Rangsit.

The establishment of a chemical fertilizer plant is of obvious relevance to agriculture, but there are two other major undertakings which are of as much importance to agriculture as to industry; irrigation works and transportation routes. Thai industrial development has in the past been hindered by inadequate electric power capacity and was largely dependent on imported coal and oil. The dams now under construction or study, including the Mekong River Scheme, will increasingly facilitate industrial expansion through the supply of cheap hydro-electric power. The operation of the first phase of the Yanhee Dam project, which was nearing completion in early 1964, provides for a 50 per cent increase in Thailand's electric capacity; and when all of the eight generators are installed, the plant's ultimate capacity will raise this initial capacity fourfold to 560,000 kW.

The Yanhee Dam, together with the low-level Chairat Dam, which was completed in 1956 and which diverts water from the Chao Phraya to 2 million acres of cropland, will make a tremendous contribution to flood control and irrigation. Agricultural diversification and double cropping, until recently

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1. Following a further increase in this deficit to $148 million in 1963, the situation improved in January-June 1964 (through a combination of increased export earnings and lower expenditures on imports) to a deficit of no more than $34 million.
2. These include: rice milling; cigarette manufacture, which is a State-controlled monopoly; meat processing; distilling; sugar refining; cotton and silk textiles (of which the first meets over 50 per cent of national demand); cement; burlap and gunny bags; and other smaller ventures based on local produce.

hindered by the fact that only 16 per cent of the cultivated land was irrigated, will also be greatly assisted by these hydro-electric programmes. Considering that even with the primitive farming methods generally prevalent, the Thais reached a per acre rice production just a little under one-third of that of the Japanese, the new irrigation scheme combined with new methods should greatly increase productivity—provided, of course, that the farmer can see an adequate reward for his increased labour.

The other element of great importance to both agriculture and industry, means of transportation, has been receiving considerable attention from the government in improving and building up road, rail and river communications. The 'Friendship Highway' completed in 1961, for example, extends over 100 miles and has opened up no less than 1,000 acres of new land for each mile.

The machinery of government and planning

Under the formal sovereignty of the King, a Council of a minimum of fourteen ministers chosen and headed by the Prime Minister forms the supreme governing body of the country. In addition to the all important Office of the Prime Minister, there are the following ministries: National Development, the most recently established as well as next in importance to the Prime Minister's office in scope and influence; Defence; Finance; Foreign Affairs; Agriculture; Communications; Interior; Justice; Education (non-university); Economic Affairs; Public Health; and Industry. Each ministry has a permanent Under-Secretary and a Secretary of State and is divided into a series of departments, headed by directors-general; these in turn are sub-divided into divisions operating under a director. By far the largest number of departments and divisions are to be found in the Prime Minister's office and in the Ministry of National Development. The Bureau of the Budget, which is also part of the Prime Minister's office, controls the purse strings, while the Ministry for National Development is responsible for the implementation and co-ordination of all development plans.

The authority of the government is carried to all corners of the country through officials of the Ministry of the Interior, the governors of the 71 provinces (*changwad*), district officers of some 500 districts (*amphur*) and officers of the technical ministries, such as Education, at provincial and district levels. The headman of a commune (*tambon*) is locally elected, but has to be approved by the district officer. The provincial (*changwad*) educational officer has a dual responsibility both to the governor of his province and to his ministry in Bangkok.

For purposes of planning, the country is divided into four socio-economic units which largely correspond to the four natural geographic regions. The provision of data and the co-ordination of over-all planning is the responsibility of a National Economic Development Board (NEDB), working in association with the ministries, but forming part of the Office of the Prime Minister. This board is composed of all the ministers and forty-five members appointed by the Council of Ministers. It has an Executive Committee of nine members whose function is to establish the several subcommittees which in turn are presided over by the relevant ministers. The secretariat of the board is headed by a secretary-general, who is an *ex-officio* member of the Executive Committee. The board has five main divisions: Administration, Economic Planning, Foreign Aid (also referred to as a Technical and Economic Commission), Statistics, and National Income. On the basis of recommendations made by various recent studies on manpower and educational development, an Educational Planning Office was established in the Ministry of Education in 1964 and a Manpower Planning Unit added to the NEDB.

The development of higher education, a matter formerly the responsibility of different ministries, has been placed under a special body, the National Education Council (NEC)[1] which is also under the jurisdiction of the Prime Minister's office.

While noting that the rest of the educational system is the responsibility of the Ministry of Education, with the NEC exercising general advisory functions, it should also be mentioned that the ministry receives advice on educational problems and policies from the Teachers' Institute of Thailand (Khuru Sapha) which passes on the opinion of teachers, looks after their interests and welfare, performs the function of a civil service commission in regard to teacher appointments for schools, and, by no means least, manages a printing press for school textbooks and other educational publications. In recent years it has reached an average annual output of 17.5 million books and 478,400 illustrated charts.

Some basic objectives and implications of development plans

The main general objectives of the 1961-66 Six-Year Development Plan may be summarized as follows:

1. Diversification of agriculture and development of the industrial sector to achieve a steadily increasing *per capita* income.
2. Raising of over-all standards of living, particularly in backward rural areas and with special reference to the north-eastern region, by the provision of better education, health, and sanitation facilities, and credit incentives for greater agricultural productivity.
3. Encouragement of foreign and domestic private investment through all available means, and support for the growth of private industry with substantial loans through the Industrial Finance Corporation of Thailand (IFCT).

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[1] See also 'The Educational System' (below), and the National Research Council, described on p. 105-17.

4. The provision of: (a) irrigation and other elements of the infrastructure required to increase agricultural productivity; (b) electric power necessary for the full development of industrial potential.
5. Extension of free compulsory education, as soon as feasible, from four to seven years, and establishment of new institutions of higher education at Chiengmai and Khonkaen to support development requirements for human resources (both projects are nearing completion following the adoption of the plan).

The plan, proposing to spend about $1 billion (20 million baht) including foreign aid and loans, over six years, is divided for flexibility into two stages, the first covering the period 1961-63 and the second 1964-66. It is aimed at achieving economic self-sufficiency by maintaining a gross annual investment of 15 per cent of GNP, with the following order of priorities: agricultural diversification, industrialization, and the provision of social overhead capital. About 70 per cent of this investment was to be realized from internal capital accumulation (including a 5 per cent increased tax revenue arising out of economic expansion) with a minimum of deficit financing, and the remaining 30 per cent from foreign assistance and loans. This was intended to bring about an annual 5 per cent growth in GNP and a 3 per cent increase in *per capita* income.

The expenditure on economic development was to be raised from about 20 per cent of the total government outlay in 1961 to nearly 29 per cent by 1966, which is in line with revised estimates for 1964-66, although these involve an average increment in total expenditure from 1964 to 1965 and 1965 to 1966 of $50 million in each case instead of the anticipated average of $25 million. Total agricultural production was to be increased by 3 per cent per year and the industrial sector's contribution to national income from 10 to 12 per cent.

Two of the major objectives were more than met when in 1962 the agricultural production index (1953=100) rose by more than 6 per cent over 1961,[1] and manufacturing contributed about 15 per cent of the GNP. Nevertheless, in the first three years of the plan, as population grew at a rate of somewhat over 3 per cent per year, it was found that the increase in real *per capita* income (at 1956 constant prices) amounted to little over 2 per cent per year. In revising the plan for the second period, it was felt that a 3 per cent annual increase in *per capita* income could still be achieved with a 6 per cent annual increase in gross domestic product.

Further steps in 1962 were taken to stimulate the development of industry and advance agricultural production. 'The Promotion of Industrial Investment Act' encourages private and foreign investment by: (a) assurances that the State will not nationalize such enterprises or compete with them;

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[1] The increase was lower from 1962 to 1963, but between the latter year and 1964 an increase of 6.3 per cent was realized.

(b) allowing exemptions and reductions in import duty and business tax in a descending order according to the economic value of the enterprise; (c) accepting the remittance of foreign currency for various purposes and the employment of certain categories of alien skilled workers; (d) facilitating the export of manufactured goods of promoted enterprises; and (e) permitting foreign companies registered in Thailand to own land required for such enterprises. The scope of the Industrial Finance Corporation was expanded and an Agricultural Credit Agency was set up. The first, in addition to receiving a loan of about $1 million from the government, increased its total authorized and paid-up capital from $1.3 million to $6.5 million which, together with loan agreements being negotiated with various foreign sources, would increase liquid funds by $9 million. In advancing further loans, special consideration is to be given to small-scale and cottage industries. The Agricultural Credit Agency, in addition to formulating policy, will seek further finance and loans and organize the allocation of loans to commercial farmers.

The developing situation calls for highly trained managerial, technological, agricultural and administrative manpower, which it is the task of higher education to provide. It also demands an effective distribution of such personnel which, while it might perhaps be facilitated by higher education, must, in the end, be promoted and realized through means lying outside education's scope. These means may range between incentives that make the material and intellectual rewards of working in the field more attractive and various degrees of guidance and compulsion exercised by the State, particularly as a condition for the privilege of being admitted to higher studies and for further advancement in the civil service. The crucial importance of high-level manpower is fully recognized by the government, but while the provision of scholarships and bursaries with service conditions and the spread of new institutions of higher education should help in tackling the problem of distribution, it will probably still be necessary to provide further incentives.

THE EDUCATIONAL SYSTEM

The present pattern of education was adopted in October 1960 and provides for at least four years of free compulsory education, which is to be extended gradually to seven years as the growing economic strength of the country permits.[1] A comparison of the old and new systems is shown in Table 2 (examination barriers are indicated by horizontal lines).

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[1] In June 1962—following the formation of a Committee on Educational Development Project relative to the Karachi Plan—'The Project for Compulsory Education Extension within Ten Years' from four to seven years in all 4,900 districts of the country was adopted. It has since been modified owing to budgetary considerations and broken down into four basic projects.

TABLE 2. Educational system

Grade year	Old system					Grade year	New system				
1	Prathom	1				1	Prathom	1			
2		2				2		2			
3		3				3		3			
4		4				4		4			
5	Mathayom	1				5	Prathom	5			
6		2				6		6			
7		3				7		7			
8	Mathayom	4	or	SV[1]	1	8	Mathayom	1	or	SV[1]	1
9		5			2	9	Suksa	2			2
10		6			3	10		3			3
11	Mathayom	7	or	HV[1]	1	11	Mathayom	4	or	HV[1]	1
12	(or pre-university 1-2)	8			2	12	Suksa	5			2
13					3	13					3
						14	Technical level or 3 years after MS 5				1
						15					2

1. Senior and higher vocational.

Entrance to the university follows on grade 12. Two[1] to three years are required for a diploma and from four to six years for the first degree.

The whole educational system is organized by the State and all registered institutions are under its supervision. Private organizations and individuals are permitted, and in some cases assisted, to establish and operate primary and secondary schools in accordance with the ministry's regulations.

Exercising full control over educational matters at pre-university level, the Ministry of Education consists of two offices and eight departments: the Office of the Secretary to the Minister of Education, and the Office of the Under-Secretary of State for Education; Departments of Primary and Adult Education, Secondary Education, Vocational Education, Teacher Training, Physical Education, Educational Techniques, Religious Affairs and Fine

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[1] Only available in teacher training at the College of Education.

Arts. In 1959, all universities were transferred by royal decree to the Office of the Prime Minister. A National Council of Education, established in 1959, consists of sixty members, eminent laymen as well as many nominated senior members of university staffs. The council holds special responsibility for the organization of universities, considers over-all plans for educational development, and advises the Office of the Prime Minister and the Ministry of Education. The Prime Minister himself is chairman of the council but the Minister of Education, in his individual capacity, has been chairing its nine-man Executive Committee, other members being elected for a two-year period. The council is divided into a University Administrative Subcommittee and a University Curriculum Subcommittee, but it has a unified and recently strengthened Executive Office (NECO) directly under the supervision of the Prime Minister. The council's budget is met from that of the Office of the Prime Minister. Given its intermediate position and its special relationship to universities as well as to education as a whole, the potentialities of the council are considerable. Their realization depends on effective liaison between the council and other government planning agencies and a growing efficiency in its working methods, planning and administrative machinery.[1]

With the exception of primary schools, which may be under municipal control,[2] the director-general of each department of the ministry is responsible for the corresponding sector of education. The State, however, allows institutions of higher education wide freedom to operate within the framework of relevant legislation.

For administrative purposes, the seventy-one provinces (*changwad*) are grouped into twelve educational regions, each supervised by a regional education officer supervising provincial and district (*amphur*) officers.

In 1961, about 15 per cent of all pupils at primary and secondary levels were in private schools. These schools accounted for only 9 per cent of the enrolment in the lower primary stage (grades 1-4), but in all other stages (pre-primary, grades 5-7 and secondary) the private schools accounted for about half the total enrolment. It is particularly significant that 50 per cent of the grade 5-7 enrolment is private, in that it shows how far the government still has to go in implementing its policy of free compulsory education up to grade 7. In the higher secondary stage (grades 11-12), as much as 56 per cent of the enrolment was in private schools. The data are given in Table 3.

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1. Recent steps in this direction have been taken by establishing close consultation between the National Education Council Office, the Educational Planning Office and the National Economic Development Board.
2. Very recent policy changes appear (April 1966) to have shifted the major responsibility for the organization of primary education and the posting of staff to the Ministry of the Interior as part of a move to strengthen and develop local government. The outcome of this most unusual step is yet to be assessed.

TABLE 3. Public and private school enrolment in general education by level, 1961

Level	Public	Private	Total	Private as percentage of total
Prathom 1-4	3 365 701	351 268	3 716 969	9.5
Prathom 5-7	194 502	181 451	375 953	48.3
MS 1-3	113 723	122 521	236 244	51.9
MS 4-5	15 339	19 173	34 512	55.6
TOTAL	3 689 265	674 413	4 363 678	15.5

TABLE 4. Growth of enrolments by level and types of education, 1954-62

Type and level	Enrolments		Percentage growth
	1954	1962	
Pre-primary (kindergarten)	21 282	37 180	75
Primary			
1-4	2 937 744	3 721 308	27
5-7	176 222	364 826	107
Secondary general			
8-10	75 712	251 236	232
11-12	7 207	36 094	401
Vocational 5-7[1]	19 302	341	(Discontinued)
Vocational secondary			
8-10[1]	12 020	11 183	—7
11-13[1]	5 332	26 692	401
Technical 14-15 or 13-15	808	5 607	594
General teacher training:			
Certificate of Education	4 511[2]	11 334	151
Higher Certificate of Education	494[3]	3 303[4]	569
Vocational teacher training:			
Elementary Teacher Certificate	704	483	—31
Secondary Teacher Certificate	71	751	958
University	21 129	42 397	101

1. Enrolments in short training courses ranging from five months to two years at various levels are not included.
2. Includes other primary teacher-training qualifications, all of which were discontinued by 1959.
3. Secondary Teacher Training Certificate.
4. Not including 682 students in Diploma of Education courses. Including these, as the diploma is equivalent to the Higher Certificate of Education, would raise the percentage increase to 700 per cent.

Table 4 shows a rapid rate of growth between 1954 and 1962 at most school levels, but particularly pronounced rates for higher secondary general and vocational, technical, and teacher training (secondary level) education.

Thai is the medium of instruction at all levels, but English is taught as a second language from grade 5 onwards and acquires special importance in higher education, where students are expected to be able to consult English-language textbooks. Accordingly, the six hours a week devoted to the teaching of English at the upper primary and lower secondary stages are increased to nine or ten hours in upper secondary schools. Nevertheless, an inadequate use of English remains a basic problem in the maintenance and advancement of standards in higher education.

Primary education

Compulsory primary education was established by law in 1921. Naturally there was initially a high enrolment ratio, and recent enrolment in the first four grades has therefore been increasing only at about 3.5 per cent per year, a little faster than the rate of population growth. Dr. Boonserm Weesakul of the Ministry of Education has made a study which shows that the four-year compulsory attendance law is approximately 90 per cent effective. But pass rates at the primary level are rather low and, since promotion is not automatic, it is estimated that it takes the average child more than five years to complete the fourth grade. In 1961, out of 3.72 million children in grades 1-4, only 2.95 million were in the age-group 7-10 years. But if an age of 7 years is taken as the normal age for grade 1, 8 years for grade 2 and so on, then out of 4.09 million pupils in grades 1-4, only 1.80 million were of normal age.[1] Thus, although the entire population of 3.10 million in the age-group 7-10 years was in school in 1961, there was a great deal of retardation of older children still in the first four grades. It is reported that the ministry is encouraging a more liberal policy in this matter. Another problem at this level of education is the high drop-out rate. It is estimated that, out of 1,000 students in grade 1, less than half reach grade 4; of these, less than 20 per cent go on to grade 5[2] and no more than 15 per cent enter secondary school, including vocational secondary education.

Future plans for the development of the first four primary grades aim mainly at keeping up with population growth, reducing drop-outs preventing retardation by more effective teaching. These aims are at present hampered, not only by a shortage of facilities, but also by a serious lack of qualified teachers, and by overcrowded and ill-equipped schools, particularly outside the municipal areas.

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[1] It is also thought that a considerable proportion of pupils are under-age, particularly in the first grade.

[2] In 1964/65, pupils in grades 5-7, totalling 439,000, formed no more than 20 per cent of the relevant age-group.

Secondary education

Total enrolment in general secondary education (grades 8-12) in the eight years from 1954 to 1962 was more than trebled, from around 83,000 to about 290,000. In the lower secondary grades it has recently been steadily increasing at an annual rate of about 16 per cent. In 1960/61, the enrolment in these grades was 13 per cent of the corresponding age-group 14-16 years (16 and 9 per cent respectively for boys and girls).

Enrolment in the upper secondary classes (grades 11-12 or the former pre-university classes) has been recently growing at an annual rate of over 22 per cent.[1] The two grades at this level of education were until 1963 divided into two divisions of science and of arts; more recently a third division was added, comprising general education with a vocational bias. About 75 per cent of the enrolment in 1961 was in the science division.

Under present conditions it is estimated that, out of 1,000 students entering grade 1, about 100 enter grade 8, most of whom reach grade 10, though only about 20 enter grade 12, from which the pass rate in the final examination is around 60 per cent. The Department of Secondary Education has estimated that the number of grade 12 graduates will rise from about 20,000 in 1963 to somewhat over 30,000 in 1970.

However, while in recent years secondary vocational and technical enrolments have increased spectacularly, secondary education still largely follows a general academic pattern. The Joint Thai-USOM Task Force[2] has suggested that, in addition to expanding vocational education, a terminal type of secondary general education might be developed to provide secondary graduates for employment rather than for further studies.[3] Success in such diversification will depend either on the introduction of efficient selective examinations or even more complex testing, guidance and counselling procedures.

At present, the competitive entrance examination to secondary schools is rigorous and, in the absence of organized school records which might help in the matter, backward but intelligent pupils coming from inadequate primary schools in the rural areas tend to be eliminated from the running. Apart from this, rural pupils find it more difficult to reach secondary education as most schools are situated in the larger towns (in no more than 500 districts out of a total of 4,900), with upper secondary schools established only in major centres.

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[1] And more rapidly for girls: around 26 per cent, as against 20 per cent for boys.

[2] *Preliminary Assessment of Education and Human Resources in Thailand* (Bangkok 1963).

[3] The introduction of the new division of general education with a vocational bias may help in this respect—but only if it succeeds in attracting a significant proportion of total enrolments, instead of becoming a poor second choice. This can be avoided only if the graduates of this division can compete on an equal footing for entrance to higher education.

The best private secondary schools—and about half of the academic stream is enrolled in private schools—charge high fees and cater for the children of wealthy parents. The others, with less exclusive entrance requirements, provide moderately well-off parents with the opportunity of securing a secondary education for children who fail to pass the entrance examination of State schools.

Although the general quality of teachers in secondary schools is better than at the primary level, no more than half hold academic qualifications specifically related to secondary-level teaching (Degree and Higher Certificate in Education), and many are not fully qualified in the subjects they teach. At the lower secondary level a major proportion of teachers possess no more than a Certificate of Education. The standards of secondary schools are in many cases also affected by the inadequacy of equipment, particularly for the teaching of natural sciences, which not infrequently takes place without practical laboratory work, sometimes even without practical class demonstrations. Another serious specific deficiency is in the teaching of English and is due to a shortage of able and adequately trained teachers. Given the need for consulting English textbooks and journals at the university level, and the importance of English in vocational education as well, it may well be that more time needs to be given to its teaching at the lower secondary as well as the higher secondary level.

Vocational education

In 1962, secondary vocational education accounted for less than 14 per cent of total secondary enrolments (not including teacher-training enrolments). In general it follows a 7-3-3[1] pattern. Lower vocational education at grades 5-7 has been discontinued, as it was both unsatisfactory and unpopular. In 1963/64 there were three main levels, each of which could be terminal or progressive: (a) a three-year senior vocational programme, corresponding to grades 8-10; (b) a three-year higher vocational programme, corresponding to grades 11-13; and (c) a two- to three-year technical programme, which probably accounts for the fact that, except for architecture, there are no three-year university diplomas in engineering (grades 14-15/16).

It is not unlikely that the senior vocational schools, like the former junior vocational schools, may be discontinued, since enrolments have been declining steadily (from around 25,000 in 1959 to 11,000 in 1962). It has been suggested that the training has been ineffectual and that, with increasing demand for better-trained personnel, employment opportunities for graduates of this level of training have declined, especially as they are no longer in a position to qualify as vocational teachers for the discontinued junior vocational grades 5-7.

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[1] Short-term training courses of anything from five months to two years are also available at lower and upper secondary levels which prepare candidates for specific types of employment.

By contrast there has been a very substantial increase in enrolments in higher vocational and technical education. Enrolments and graduates at these levels in 1962 were: higher, 27,011 and 7,148; technical, 4,761 and 2,454. The graduate enrolment ratio is comparatively high, and the drop-outs at higher and technical levels are estimated at no more than 13 per cent.

Of a total staff of 4,670 in 1962,[1] 701 had degrees, 1,861 had teacher-training certificates, and 2,108—just under half—had no formal teaching qualifications.

Of five technical institutes in 1964, two were in the Bangkok-Thonburi area and contained nearly 80 per cent of all enrolments at the two upper levels. The Bangkok Technical Institute is co-ordinated with three regional institutes, all of which now offer courses at both the higher vocational and at the technical level. Technical institutes offer a wide range of specialties, including auto-mechanics, construction, metal work, electricity, radio, television, etc. Girls take such courses as commerce, stenotyping, home economics, dress-making and designing. The institute and its regional associates are very popular: in 1963 only 1,200 out of 6,000 applicants could be admitted.

One of the principal problems facing the technical institutes has been the provision of adequate textbooks, according to a report by Wayne State University, which had a contract arrangement with the institutes between 1955 and 1960. Translations are being produced slowly and are apparently of an indifferent quality. Improving the students' present inadequate standard of English, however, would inevitably be an even more gradual process.

The second major institute, the Thonburi Technical Institute, was set up with assistance from Unesco over a five-year period. It admits students who have passed grade 12 and offers a three-year programme so that the graduates are at the same level as graduates of two-year technical courses at Bangkok Technical Institute. The institute enrols about 200 students in electrical engineering and 100 each in mechanical engineering, building and machine tools. In 1962/63, out of a total enrolment of 559, there were 255 enrolled in the first year, 179 in the second and 125 in the third. The institute stresses electrical engineering, as it is expected that a considerable stock of electrical engineers will be needed for the development of electric power between 1965 and 1975.

In addition to these vocational schools run by the Ministry of Education, there are a number of special courses given by certain other ministerial departments to train their own future staff, but no specific data are available on their enrolments and outputs.

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[1] Including technical institutes and vocational teacher training.

Teacher training

The following are the main teacher-training institutions, of which the last two will be considered under higher education: (a) fourteen provincial teacher-training schools; (b) thirteen provincial teacher-training colleges;[1] (c) the College of Education at Prasarn Mit, Bangsaen and Patoom Wan; (d) the Faculty of Education, Chulalongkorn University. Besides the regular programmes, there are also a number of special arrangements for vocational (including home economics), physical and agricultural teacher training, on which collated data are not available.

Teacher-training qualifications below degree level are: (a) the Certificate of Education, a two- to three-year programme after general grade 10 or senior vocational grade 10, offered in teacher-training schools; (b) the Higher Certificate of Education, a two-year programme after grade 12 or its equivalent (including the Certificate of Education), offered in teacher-training colleges;[2] (c) the Vocational Secondary Teacher's Certificate with requirements similar to (b).

TABLE 5. Enrolments and graduates of teacher-training institutions (pre-degree level),[1] 1961 and 1962

Level	Enrolments		Graduates[2]	
	1961	1962	1961	1962
Certificate of Education	10 918	11 334	4 633	5 108
Higher Certificate of Education	3 153	3 303	1 316	1 402

1. Vocational teacher-training enrolments (around 1,300 in 1961) are not included.
2. Output in 1960 had reached a high point of 5,695 certificates. Subsequent reductions were at least partly dictated by policy; but in 1964 the Ministry of Education felt that the policy had been more wise in fiscal than in educational terms, and that in future additional steps would have to be taken to catch up with shortages.

For the Certificate of Education, the main subjects of study for various courses are mathematics, science, English, Thai, humanities, education, psychology, physical education and handicrafts. On passing their certificate examination, the trainees are qualified to teach in primary schools or seek admission to the more advanced courses in teacher training. During their second year, students of both the Certificate and Higher Certificate of Education must spend a minimum of three months in primary-school practice teaching.

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[1] The schools and colleges may form a joint institution on the same campus.

[2] This, plus some teaching experience, is accepted as an entrance requirement for a two-year course leading to a bachelor's degree in education.

TABLE 6. Enrolments by grades, 1961[1]

Grades	General		Technical/vocational	Teacher training	Total
	MF	F			
Primary					
1	1 322 855	629 018			
2	947 985	453 978			
3	788 816	379 746			
4	657 313	318 081			
Sub-total 1-4	3 716 969	1 780 823			3 716 969
Primary					
5	137 054	53 505			
6	126 185	49 004			
7	112 714	43 327			
Sub-total 5-7	375 953	145 836			375 953
Secondary					
8	93 790	35 873	4 198		
9	75 958	29 219	6 105		
10	66 496	24 876	6 577		
Sub-total 8-10	236 244	89 968	16 880		253 124
Secondary					
11	22 091	8 842	11 953	6 015	
12	12 421	5 164	8 237	4 903	
Sub-total 11-12	34 512[2]	14 006	20 190	10 918	65 620

Secondary				
13 (vocational)		11 784[3]	2 032[4]	13 816
University and other higher[5]				
13	5 778			5 778
14	4 209	2 237	1 787	8 233
15	3 007	2 080	356	5 443
16	2 313	574[6]	468	3 355
Post-graduate				
17+	919			919
Sub-total 13-17+	16 226	4 891	2 611	23 728

1. Based on data in *Preliminary Assessment of Education and Human Resources in Thailand*, op. cit., pp. 224-6.
   Available data on later years do not permit a detailed breakdown beyond the secondary level. (Short course enrolments are not included.)
2. Some 25,200 of these, including 8,000 girls, were enrolled in the science division.
3. Apparently includes some technical/vocational enrolments in universities, as total higher vocational enrolments in 1961 were 29,327 as against the table's grade 11-13 total enrolments of 31,974.
4. Includes grade 13 teacher-training enrolments at universities.
5. University enrolments refer to only full-time students, thus leaving out over 23,000 part-time students at the University of Thammasat. Except for some teacher-training enrolments given separately, the general category in relation to universities includes technical and other professional enrolments.
6. Apparently a mixture of third-year technical students, coming from the scientific division of general secondary education and vocational teacher trainees.

Enrolments (of which about 50 per cent were female) and graduates for 1961 and 1962 are shown in Table 5.

With their rapid expansion, the teacher-training institutes have suffered some of the same staffing pressures as other institutions, in particular having to use inexperienced graduates: in 1962 out of a total of 1,727 teachers in these colleges, 1,184 were graduates, and of the 31 per cent considered insufficiently qualified, about 12 per cent had less than a Higher Certificate of Education.

The colleges emphasize training in teaching methods, but are also endeavouring to improve the content of teaching. Another problem in the improvement of standards, however, is that the average grade 10 entrant has not attained a sufficiently high scholastic standard and the cream of grade 12 is mostly skimmed off by the universities.

THE EDUCATIONAL PYRAMID

While, as Table 6 shows, the first four years of primary education provide a very broad base to the sharply tapering educational pyramid, there is a high drop-out and repetition rate from one grade to another, only about one-half of those entering grade 1 reaching grade 4. There is then a big drop, less than 20 per cent of grade 4 going on to grade 5. The decrease from grade 4 to grade 5 is partly due to the fact that extension of compulsory education beyond four years was in its initial stages and that provision for free further education was accordingly thin, particularly in rural areas. However, it is interesting to note that the retention rate from grade 5 to 7 is fairly high, at over 90 per cent for survival from one grade to another, and that some 90 per cent of those in grade 7 graduate and enter secondary education. About 80 per cent of secondary entrants reach grade 10 which is a terminal point as well as a step to further education.

These retention rates would seem to indicate that the quality of schools and teachers at these levels of primary and secondary education are far more satisfactory and that the selection of students has been effective. Nevertheless, the fact remains that by this time a large proportion of rural students have already been eliminated at the primary levels. From grade 10 to 11 there is again a big drop, only about one-third reaching this pre-university level which is, for the most part, composed of children from upper income groups in municipal areas. Finally, no more than 40 per cent of those enrolled in grade 11 graduate successfully from secondary school, the pass rate for the final grade being about 60 per cent. Of the graduates, less than one-third enter a university.[1]

Considerable attention has been given to development of upper secondary vocational education, while upper primary vocational schools have been discontinued and there has been significant reduction in lower secondary vocational enrolments. The result in 1961 is that, while secondary vocational enrolments as a whole form no more than 18 per cent of total secondary enrolments, at the grade 11-13 level they account for nearly 50 per cent of the total enrolment, excluding teacher training.

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[1] Official estimates of admission rates for 1962 and 1963 also suggest that no more than one-third of the secondary-school graduates were admitted to a university.

Finally, it is relevant to note that while girls form nearly 50 per cent of the enrolment at the lower primary level, the proportion declines to just over 37 per cent by grade 10, rises again slightly at grade 11-12 to about 40 per cent, and at the university level drops to around 26 per cent.[1] In comparison with other countries outside as well as within the region, however, these ratios remain high and indicate remarkable progress toward ensuring equal educational opportunities for women. It remains to be seen how the picture will develop with the implementation of the plan to extend compulsory free education to seven years.

HIGHER EDUCATION

STRUCTURE, ORGANIZATION AND ADMINISTRATION

The origins of the present system of higher education in Thailand may be traced back to 1887, when King Chulalongkorn established a department of education with foreign advisers, mostly English educationists. Before this, all education had been the responsibility of the Buddhist priests who, like clerics in mediaeval Europe, were the scholars of the country. Through the Education Department, which later became a ministry, temple schools were brought under the control of the central government, State schools began to be established and the westernization of the educational system began.[2] A medical school, designed to provide a short training course of three years, was started in 1888 at the Siriraj Hospital of Thonburi; a law school was inaugurated in 1897; and in 1902 a Royal Page's School was established within the precincts of the palace to provide sons of the nobility with a modern general education, including instruction in the English language, and training in the art of government administration. In 1910 the Royal Page's School became the Civil Service College, and in 1917 King Vajiravudh decreed that the college, together with the medical school (whose status had been raised to a Royal Medical College, and whose degree course had been extended to six years) should constitute the basis of a full university, named Chulalongkorn.

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[1] Breakdowns by grades at this level were not available and therefore do not appear in Table 6.

[2] However, it was also during this time that the Mahamakut College, now referred to as the Buddhist University of Thailand, was founded (1893) for the higher education of Buddhist monks and novices.

However, it was only after the 1932 revolution which ushered in the era of constitutional monarchy that the basis of higher education was broadened to provide cadres of specialized high-level manpower. By 1953, the following State institutions of higher education had come into existence and were, until 1959, directly under the control of different ministries:

1. Chulalongkorn University, the only university with a wide range of faculties.
2. Thammasat University (Moral Sciences) founded in 1934, on the basis of the old law school which had until then been a part of Chulalongkorn's Faculty of Political Science.
3. University of Medical Sciences, founded in 1942 on the basis of Chulalongkorn's Medical Faculty and, by 1959, including three clinical branches associated with Chulalongkorn and Siriraj Hospitals in Bangkok, and Chiengmai Hospital.
4. Kasetsart University (Agriculture and Veterinary Science) founded in 1943 through the amalgamation of previously established schools of agriculture and forestry.
5. Silpakorn University (Fine Arts) founded in 1943 on the basis of a school of painting and sculpture established in 1934.
6. The College of Education, founded in 1953 on the basis of the Prasarn Mit Higher School of Teacher Training set up in 1949.

Chulalongkorn, Thammasat (with a special statutory budget), and the College of Education were under the jurisdiction of the Ministry of Education, Medical Sciences under the Ministry of Public Health, Kasetsart under the Ministry of Agriculture, and Silpakorn under the Ministry of Culture. The reasons that led to such a division of institutions, which would normally be considered faculties of a university, and their separate special relationships to ministries are not clear, but in part at least it seems that it was largely due to the pragmatic beginnings of higher education—primarily regarded as a means of providing trained manpower for administration and other specialized fields—an origin which indicated specific ministerial links as being most practical. However, problems of co-ordinating development under this system became increasingly apparent. In 1954 Sir Charles Darwin in his report to Unesco on *Science in Thailand and Notes on Universities in Thailand* strongly recommended: (a) that responsibility for the co-ordinated development of higher education should be vested in a centralized government agency which might be patterned on the University Grants Committee of the United Kingdom, perhaps directly under the Office of the Prime Minister; and (b) that the various university institutions in Bangkok should be integrated into one university, the pattern of the University of London. Today the universities are no longer under different ministries but have been made the responsibility of the National Education Council. The second proposal, while frequently canvassed, has not yet been accepted,[1] but the new universities in Chiengmai and Khonkaen are to become institutions embracing a wide range of faculties.

The council, including as it does rectors and other senior representatives from all universities and the College of Education, is in direct contact with individual university administrations, and thus both academic and financial development plans can now be considered in perspective for higher education as a whole. The Ministry of Education, however, still remains directly responsible for both teacher training and higher vocational education and, with the advice of the council, has also been responsible for the initial establishment of Chiengmai University.

University councils are the governing bodies of individual universities. The Prime Minister is *ex-officio* president of each of the university councils (with a membership of about twenty-five each in the case of Chulalongkorn and the University of Medical Sciences), which include a number of members appointed by the Crown on grounds of merit and upon the recommendation of the Council of Ministers, as well as *ex-officio* and elected senior members of staff. The rector is the executive head of the university and vice-president of the University Council—in addition he usually also holds other high government office. In some cases he is assisted by a deputy rector. There is a definite distinction between academic and administrative staff in terms of organization, although there is some overlap in function. On the academic side, there is a dean for each faculty, institute or college, which in turn is divided into various departments each of which has its own head. For administrative purposes, there is a secretary-general supported by heads of divisions and chiefs of sections. All staff are civil servants whose appointment is in principle subject to the approval of both the Prime Minister and the King. While there are only small differences in the organization of individual universities, the College of Education has a quite distinct system. The governing body is a board headed by the Minister of Education and includes several departmental heads from the Ministry of Education, the president, three vice-presidents and departmental heads of the college, and a number of honorary members.

Finally, since it plays a major role in promoting research in universities as well as in other fields, the National Research Council (NRC) must be mentioned. By Act of Parliament in 1956, it is charged with defining national policies relating to scientific matters as well as initiating and supporting research. Its scope was subsequently broadened by legislation in 1959 assigning it the following specific functions: (a) to make recommendations to the Council of Ministers on national policies and programmes relating to research; (b) to establish and support research groups and institutes in accordance with instructions from the Council of Ministers; (c) to co-ordinate research activities in various branches of science; (d) to promote and support public and private research; (e) to register investigators and scholars who are engaged in various branches of science; (f) to establish additional divisions of the council; (g) to assign investigators to work on research projects; (h) to suggest ways and means for financing research; (i) to make grants and awards in support of research: (j) to co-operate with other countries in research; and (k) to submit an annual report to the Council of Ministers.

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[1] See note on p. 120.

In addition to divisions for physical and mathematical sciences, medical sciences, chemical and pharmaceutical sciences, agricultural and biological sciences, and engineering and industrial research, the NRC also has divisions covering philosophy, jurisprudence, political science and public administration, economics and sociology.

Headed by the Prime Minister as president, and the Deputy Prime Ministers as vice-presidents, the council is composed of other members appointed by the Council of Ministers, including its secretary-general and two deputy secretaries-general. All Ministers of State are *ex-officio* advisers. Its Executive Committee consists of the chairmen of the divisions, the secretary-general and not more than five other members appointed by the Council of Ministers.

In 1962, out of a modest budget allocation of $90,000, it set aside about 55 per cent to meet its own administrative requirements and, of the remainder, made block grants totalling $7,500 to the five universities, initiated a fund of $30,000 to support individual research, and another of $2,500 for post-graduate fellowships.

General admission policies and procedures

Despite the rigorous selection involved in completing secondary education and the high failure rate in final examination, graduation from the academic grade 12 (MS 5) is not considered a sufficient qualification for entry to a university. Three reasons are given for this: (a) there are more candidates than available places; (b) the grade 12 examination, even though strict, does not in itself reveal aptitude for university studies; and (c) opportunities for a university education must also be provided for students completing equivalent secondary technical and vocational education courses. Accordingly, until recently, each university institution held its own competitive entrance examinations, and many a candidate applied for admission to more than one of these in the hope that if he failed one examination he might succeed in another. This situation entailed the following problems:

1. Not more than 30 per cent of those enrolled in grade 12 are admitted to the university and the qualifications of the remainder do not prepare them professionally for any particular occupation.
2. Duplication of effort and expenditure was involved in holding entrance

examinations rather than designing the grade 12 examination to provide sufficient data for decisions on admission to higher education.

3. Special difficulties were involved for students from provincial schools in preparing and appearing for various entrance examinations.
4. Further duplication was involved since most candidates sat for more than one entrance examination.
5. Despite the general shortage a number of places in various faculties were left unfilled owing to the absence of any machinery for co-ordination.

The first problem is met in part by opportunities for further education in teacher training, technical and vocational institutions (though this often involves an overlap of total years of study), and the last two are now being tackled by the institution of a centralized admissions system introduced in 1963 and supervised by the National Education Council. Examinations are held in some twenty subjects, question papers being set by the relevant faculties of university institutions. Each candidate is required to take five papers, selecting subjects in accordance with the faculty or faculties (stated in order of preference) to which he seeks admission. The selection, based on grades obtained in the different subjects, aims both at: (a) directing successful candidates to the faculties for which their results best qualify them; and (b) in so far as vacancies exist, offering them admission opportunities to faculties in accordance with their personal preference.

In 1963, there were reportedly 20,000 candidates for 5,000 university places, the applicants obviously including secondary-school graduates from previous years as well as others from technical/vocational streams, since with a grade 12 enrolment of 12,000 in 1962 the number of secondary graduates in 1963 would have come to just a little over 7,000, at an average pass rate of 60 per cent. Plans for expansion will increase places in existing universities by about 200 per year during the immediate future, and the establishment of Chiengmai University and the University of the North-East at Khonkaen should increase new admissions by at least 300 and 150 new places respectively—with a subsequent doubling of these by 1970.[1]

Media of instruction

While the medium of instruction has always been Thai, the need for an adequate knowledge of English has persisted since there is a great scarcity of Thai textbooks and reference works, especially in scientific fields. As indicated earlier, the knowledge of English gained at the secondary level is far from sufficient. Consequently, universities continue to give considerable attention to the teaching of English thus enabling students to make up their English language deficiencies. Chulalongkorn University provides for three to five hours per week of instruction in English during the first two years, continuing with two to four in the following two years; and Thammasat University arranges courses that generally cover three credit hours per week over the first two years. Even so, both overcrowded classes and inadequate standards of teaching make satisfactory progress difficult. With the assistance of Indiana University, the College of Education's Language Centre is investigating ways of improving the teaching of English as a second language, and it is hoped that applying the results obtained to teacher training and teaching methods will help to improve the situation. Meanwhile, academic standards clearly suffer from this disadvantage.

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[1] In 1965, Chiengmai had already reached a total enrolment of 1,066 and Khonkaen 214, albeit at temporary quarters in Bangkok, while more permanent quarters were under construction.

Sources of finance

The budget of institutions of higher education is met mainly through allocations from the central national budget and, on an average, accounts for about 70 per cent of an institution's total expenditure. Of the remaining 30 per cent, two-thirds is met by student fees and one-third by miscellaneous sources of income.

Note on proposed reorganization of universities

In May 1964, the Prime Minister, Field Marshal Thanom Kittikachorn, instructed the National Education Council to reconsider a plan to reorganize the five universities of Bangkok into three so that each of these would cover more than one faculty. It was proposed that the Chulalongkorn Hospital Medical Faculty should merge with Chulalongkorn University; that the Silpakorn University, Thammasat University and the Siriraj Hospital should together form another university (possibly to be named Bhumipol, after the present king); and that a new medical faculty be established at Kasetsart University, which might be renamed Bangkok University. It was further reported that the Rockefeller Foundation had agreed to assist in carrying out the proposed merger by providing experts to survey the situation and make recommendations. On the other hand, educationists conscious of the practical problems such a reorganization would involve, and hesitant about its benefits, are also doing their best to urge careful reconsideration before the proposal is implemented.

THE INSTITUTIONS AND THE GROWTH OF HIGHER EDUCATION

This section deals with the scope of the operations of the existing universities, recent trends in over-all enrolment, staffing, and the output of graduates, and plans for the establishment of two new institutions.

Chulalongkorn University has seven faculties—Education, Commerce, Political Science, Natural Science, Engineering, Architecture, and Arts—and two schools, the Graduate School and the associated SEATO Graduate School of Engineering.

The university's total enrolment in 1962/63 was just over 6,200, with about half of the students in the Science and Engineering Faculties. A majority of those enrolled in the Arts, Education and Commerce Faculties were women.

The central library of the university had, in 1961, 45,000 volumes, including publications in English and Thai and a small collection of German and French books. It subscribed to 150 periodicals. Among faculty libraries on the campus, special mention may be made of the SEATO Engineering School library which in 1962, had 11,000 books,[1] periodicals and other publications of direct relevance to its graduate courses.

The Graduate School of Engineering was started in 1959, with the technical assistance of the Colorado State University, to serve all Asian members of SEATO by providing advanced technical training through regular post-graduate programmes. While the school is affiliated to the university, it has its own board of management, consisting of a maximum of eight members appointed by the SEATO Council.

Since the beginning of 1964, the Chulalongkorn campus has also housed the Asian Institute for Economic Development and Planning, which is an autonomous institution under the aegis of ECAFE. The basic aim of the institute is to train middle- and senior-level officials of governments in the ECAFE region through general, special and short-term courses, in the work of economic and social planning, with emphasis on practical problems rather than on theory, and to conduct research calculated to assist such training and eventually to be able to provide advisory services on government requests. For the first course of nine months, beginning in February 1964, 30 trainees were selected from among 60 nominations and from fourteen countries, including Indonesia, Laos, Malaysia, the Philippines, Thailand and Viet-Nam.

Thammasat University has a Faculty of Liberal Arts, providing two-year foundation courses for subsequent specialization, and Faculties of Law, Commerce and Accountancy, Political Science (including diplomacy), Economics, Social Administration (including journalism) and Public Administration (formerly referred to as an institute).

In its total 1962/63 enrolment of over 30,500 students there were only just over 1,000 full-time students. Conceived of as an in-service university, provision for such a large part-time enrolment was made to offer employed secondary-school graduates the opportunity to pursue higher education in their spare time and to appear for final examinations when they felt ready for them, a process not infrequently taking as long as eight years.[1] Estimates of students in regular attendance at lectures vary between 2,000 and 10,000. However, as will be shown in greater detail later, in 1962 regulations were introduced to reduce new admissions from the past average of 8,000-10,000 to around 1,700, emphasizing the university's role as an efficient producer of responsible members of society.

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[1] It may be convenient to indicate the stocks of other university libraries here, namely: Thammasat, 12,000 volumes (1961); University of Medical Sciences, 33,000 volumes (1961); Kasetsart, 17,600 volumes (1962); College of Education (all three branches), 62,200 (1962).

With 1,700 to 10,000 for new admissions as a ratio roughly amounting to 1:6, the Thammasat enrolment might be considered as effectively amounting to roughly 5,000 full-time students, i.e., one-sixth of its nominal population. Alternatively, if the expected number of graduates in 1962/63 at around 1,100 is taken as valid and allowance is made for a not infrequent current enrolment-graduate ratio of 10:1, a higher estimate is reached involving an enrolment of somewhat over 10,000 students. Given the wide margin of error on each side, the median figure of 7,500 may after all lie nearer the real situation.

The University of Medical Sciences, in association with the Siriraj and Chulalongkorn Hospitals in Bangkok and the Chiengmai Hospital in Chiengmai, includes a Nursing School as well as six faculties: Tropical Medicine, Public Health, Pharmacy, Dentistry, Medical Technology, and Medical Sciences. In 1962/63, there were nearly 3,000 students enrolled, of whom 47 per cent were women.

Kasetsart University possesses six faculties or departments: Agriculture, Economics and Co-operative Science, Fisheries, Forestry, Veterinary Science, and Irrigation Engineering. In 1962/63 it had a total enrolment of some 2,280 students, including a large proportion in three-year associateship courses.

Silpakorn University has four faculties: Painting and Sculpture, Thai Architecture, Decorative Art, and Archaeology (including history and languages). In 1960/61 it had a total enrolment of about 300 students.

The College of Education, in addition to its main centre at Prasarn Mit, has two affiliated colleges, one at Bangsaen and the other at Patoom Wan, near Chulalongkorn University. It includes a Department of Educational Research and houses an Institute for Child Study and the headquarters of the South-East Asian Regional English Project (see pp. 146-8). In 1962 the college and its branches had a full-time enrolment of 1,566 internal students and 1,953 in-service teacher trainees enrolled in afternoon sessions picturesquely referred to as 'twilight classes'.

Each branch of the college has its own library of books, pamphlets, periodicals, filmstrips, microfilms, and slides: films and filmstrips are also supplied to teacher-training schools all over the country.

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[1] This pattern is being abandoned in Indonesia for 'guided study': a comparative study of the two systems in both countries remains to be made.

TABLE 7. Enrolment and staff by institutions, 1962/63

Institution	Enrolment	Staff		Staff/student ratio
		Total	Percentage full-time	
Chulalongkorn	6 223	672	73	1 : 9.3
Thammasat	30 571 (1 042)[1]	352 (66)[1]	19	1 : 86.8 (1 : 15.8)[1]
Medical Sciences	2 966	967	80	1 : 3.1
Kasetsart	2 280	325	70	1 : 7.0
Silpakorn	350	109[2]	29	1 : 3.2
College of Education	3 519[3]	287	100	1 : 12.3

1. Full-time.
2. 1960/61 figure corresponding to enrolment of 332 students.
3. Including part-time in-service teacher trainees.

Enrolments and staffing

The situation of enrolments and staffing in 1962/63 is summarized in Table 7.

With the exception of Thammasat, with its large number of part-time students and staff, the staff-student ratio taken at its face value appears to

TABLE 8. Increase in full-time staff of universities, 1954-62

University	1954		1962	
	Total	Percentage full-time	Total	Percentage full-time
Chulalongkorn	336	40	672	73
Thammasat	223	5	352	19
Medical Sciences	485	65	967	80
Kasetsart	188	63	325	70
Silpakorn	7[1]	...	114	35
TOTAL	1 239	47[2]	2 430	63

1. Number of part-time staff not available.
2. Excluding Silpakorn.

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[1] Chiengmai University (see p. 125) began operating in 1964 with Faculties of Science, Social Sciences, Humanities and Medical Sciences; in 1965/66 it had an enrolment of 1,066. Founded in 1964, the University of the North-East at Khonkaen (see p. 126) admitted 214 students to university courses in Bangkok, pending the completion of university buildings in Khonkaen.

TABLE 9. Total number of students and degrees and diplomas awarded, 1954-62[1]

Year	Students	Degrees	Diplomas
1954	21 233	948	345
1958	49 196	1 705	590
1962	45 787	3 454	947

1. Enrolments include part-time students. Diplomas do not include those in teacher training due to incomplete data. Data were also not available for the considerable number of other vocational students receiving post-secondary training under various government departments.

be high. Given the substantial percentage of part-time staff (which in the case of the University of Medical Sciences should probably be higher, as it seems likely that full-time medical staff of the hospitals have been included as full-time staff of the university), it is generally considered that the present staffing situation is still not satisfactory. However, as Table 8 shows, since 1954 there has, together with an approximate 10 per cent annual increase in total staff, also been a more important rise in the proportion of full-time staff. Taking the over-all situation into account, quantitative shortage of staff would not by itself, as so often suggested, seem to be a major problem for standards (see 'Staffing', pp. 151-3).

As Table 9 shows, enrolment has more than doubled in eight years, at a rate of around 10 per cent per year, but production of degree graduates has nearly quadrupled at the almost doubly faster average annual rate of about 18 per cent. The actual decrease in enrolment from 1958 to 1962 has been due to a decline in the part-time enrolment at Thammasat. However, the previously indicated annual staff increase of 10 per cent has thus only kept pace with the growth in enrolment.

Finally, a comparison of annual percentage growths in enrolments and

TABLE 10. Annual percentage growth in enrolments and degrees awarded by main fields of study,[1] 1954-62

Main fields of study	Enrolments	Degrees
Science and engineering	6.6	17.6
Arts and social sciences	8.7	16.7
Medicine and nursing	8.7	7.0
Agriculture	16.0	17.5
AVERAGE	10.0	15.0

1. Due to insufficient data, it is not possible to indicate growth rates for diplomas and for teacher education and training.

degrees awarded by main fields of study (based on absolute figures tabulated in the following section) gives the following interesting results.

The most significant factors to note are: (a) degrees awarded have grown most rapidly in the fields of agriculture, science and engineering;[1] (b) growth rates for graduates in arts and social sciences are only slightly lower than those in science and engineering; (c) medicine is the only field in which the rate of increase for graduation is lower than for enrolments.

An attempt to assess future trends of enrolments encounters various difficulties. With changes being introduced—such as the new enrolment policy of Thammasat,[2] the establishment of the new institutions, and the new pattern of admissions—a simple application of some past rate of growth or ratio, which in itself is in many cases unreliable because of large unexplained fluctuations, may stimulate speculation, but can hardly be relied upon as offering a prognosis.

With the exception of the low ouput of natural science graduates, in which a substantial increase is required, the present quantitative expansion is fairly high in other fields. If maldistribution could be cured, outstanding needs might theoretically be met in time in accordance with the pace of economic and social development. However, the achievement of this degree of co-ordination on the present *laissez-faire* basis is unlikely, and simultaneous problems of shortages and over-supply are likely to arise in various key sectors.

In this context, the development plans for the two new institutions of higher education—described below—are of great relevance.

Chiengmai University

Proposals for a new university in Chiengmai were first considered toward the end of 1958 and were approved in principle by the Prime Minister in March 1960. Thereafter the Ministry of Education undertook preparations for the opening of the new university before the end of 1964. This included responsibility for financing capital costs from the ministry's budget as well as arranging for the recruitment of staff and providing scholarships to selected Thai candidates for further study and training abroad.

Based initially on the Chiengmai branch of the University of Medical Sciences, the new university was to have five faculties to start with: Humanities, Social Sciences, Science, Agriculture, and Medicine: all except Agriculture are now in operation. As resources permit, faculties of engineering, architecture, and education are also to be added, bringing the total to eight. The cost of buildings, to cover a floor space of 1,206,000 square feet, was estimated at about $7,027,000 (excluding equipment and furniture), and the

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[1] In the first case together with enrolments.

[2] See p. 130.

Ministry of Education put up a first budgetary allocation of $1.5 million toward this, the National Council of Education making provision for a total operating fund of $1.29 million. Unlike other Thai universities, Chiengmai is to be based on a collegiate system, in which each college will have 300 to 350 associated students, of whom 200 at a time will be in residence, and all, in principle, spend at least two years in residence. All lecturers and professors are also to be attached to the colleges, and some of them will be in residence.

Plans envisaged a first admission of 300 students in 1964, and a gradual increase over the next five years, bringing admissions in 1969 to 560[1] and the total enrolment to about 1,800. It was expected that an increasingly large number of students would come from neighbouring provinces, and already in 1964 this was true of some 85 per cent of the Chiengmai students.

The policy for the new university emphasizes the importance of maintaining a spirit of community and developing fruitful contacts between students and teachers of different faculties through the college system, which at the same time should meet the accommodation problem of students from a distance. Special importance is also given to carrying out extra-mural work in co-operation with other agencies and to the conduct of research 'for the development of technical knowledge and for social benefits'.[2]

The University of the North-East

A joint Unesco-FAO mission of two specialists came to Thailand in October 1962 at the request of the Thai Government to advise on the proposal to establish what was originally called an Institute for Agriculture and Mechanical Science at Khonkaen as part of the North-East Development Plan, 1962-66. In their report,[3] Dr. C. F. Bentley and Dr. D. J. Rohner stress the important role such an institution could play in the region's agricultural and agriculture-based industrial development:

'The field staff of highly qualified practical agricultural and engineering personnel should be greatly expanded. An increase in agricultural officers and corresponding engineers is deemed essential if the North-East Development Programme is to succeed in its goal to raise *per capita* production and income.

'Provided several basic conditions are met, an institute initially having faculties of engineering and agriculture should be established at Khonkaen, in order to provide the technical personnel mentioned above.

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[1] Actual enrolments in 1965/66 (1,066) came to nearly double this number owing to the incorporation of the existing medical and nursing school into the new university.

[2] Mom Luang Pin Malakul, Minister of Education, *Note on the Establishment of Chiengmai University*, p. 1 (Bangkok, 1962).

[3] *Khonkaen Institute of Technology (KIT). Joint Unesco-FAO Report to the Government of Thailand presenting proposals regarding the Khonkaen Institute of Technology*, pp. 8-10 (Bangkok, 1962, mimeo.).

'The two faculties of the proposed institute should each offer a three-year associate diploma programme and a four-year bachelor of science degree. All programmes should be of an intensely practical and applied nature, providing associate diploma and degree levels of education to complement existing and proposed programmes of Thai education in the two fields.

'An extensive scholarship programme for rural youth of the North-East Region is urged in order to ensure the education of an adequate number of students with a practical knowledge of farming.

'Students, in order to be properly qualified and practically prepared upon graduation, should spend approximately 30-35 hours per week in class and they should have consistent assignments involving substantial amounts of additional work. Students should also be required to do at least one month of approved practical work following each semester in order to be eligible to continue their studies.

'It is imperative that the academic staff be highly qualified, well paid and employed on a full-time basis in order to offer the calibre of programme described.

'Adequate measures should be taken to ensure good co-operation with nearby government establishments and government agencies so as to strengthen the practical nature of the programmes and to avoid unnecessary duplication of many facilities in the same region.'

It was also proposed that at the outset, the faculties of (a) agriculture and (b) engineering, supported by an academic division providing basic foundation courses in arts and sciences, might respectively concentrate on providing courses in: (a) agricultural economics, agricultural mechanics, animal husbandry, agronomy, social science, and a general programme, to which fishery,[1] forestry, and domestic science might be added later; (b) civil engineering, followed, as resources permit, by electrical, mechanical, chemical and mining engineering. It was originally suggested that, at a later stage, the institute be developed into a full university, with the academic division growing into faculties of arts and science and with the addition of a medical and perhaps other faculties. At the same time, it was stressed that even the cost of the basic initial phase could not be justified unless at least 60 to 100 well-qualified students were available for admission to each of the two faculties, total enrolment rising to 830 at the end of the first four years. A staff of 35 senior, 44 junior and 14 foreign 'subject specialists' was suggested.

With the Chiengmai University project already straining available financial and teaching resources to the utmost, it was clear that exceptional measures would be required to implement the Khonkaen scheme,[2] which involved an estimated total capital cost of $3.4 million and a recurrent cost of $3.7 million[1] spread over the first five years of operation.

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[1] Presumably courses in theory!

[2] Nevertheless, the Government has in 1965 gone ahead in founding a University at Khonkaen, and pending the completion of basic buildings, has enrolled 214 students for it in university courses in Bangkok.

THE POSITION IN THE MAIN FIELDS OF STUDY

Arts and social sciences

Admission to courses in this field, provided by Chulalongkorn, Thammasat, and Silpakorn, is based on performance in the common university entrance examination and the availability of places. The minimum periods of study are three years for a diploma, four to five[2] years for a bachelor's degree, honours being awarded to students who complete their studies in the minimum period and secure an average of over 75 per cent of marks in the finals; two further years for a master's degree, open only to graduates who have secured honours, and another two years of research work after the master's degree for a doctorate. Although there is this provision for research, only an insignificant minority take advantage of it, many able students preferring to go abroad for post-graduate studies. Further, since teachers are often considerably involved in supplementing their salaries through outside work, few have time left for research and the individual guidance of post-graduate work.

The increase in enrolments and qualifications awarded between 1954 and 1962 is shown in Table 11. Columns 2 and 3 give (a) enrolments including Thammasat's part-time enrolments; (b) enrolments after having adjusted Thammasat's part-time enrolments to their effective equivalent. The adjusted figure was calculated by taking the high estimate of 10,000 effective students to an actual registration of 30,571 in 1962 and applying this rough percentage to previous years. Table 11 also shows qualifications awarded between 1954 and 1962 and part-time and full-time staff positions where data have been available. The last column has been added to suggest full-time staff strength by counting one full-time staff member as equivalent to four past-time staff, which is somewhat higher than the 55:195 ratio suggested for Chulalongkorn by Professor R. C. Gibson of Indiana University.[3]

Projected government needs for arts and social science graduates in this field,[4] 1963-80, are: 1963, 1,575; 1966, 1,500; 1970, 1,375; 1975, 1,550; 1980, 1,720. This would seem to suggest that even taking requirements of the non-governmental sector into account, a continuation of recent trends of an

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[1] If in four years total enrolment could, as suggested, be raised to about 800 (with a staff/student ratio of about 1:10) at the end of this period, the *per capita* annual recurrent cost could amount to $925 and the capital investment per student to $4,250.

[2] Five years for painting, sculpture and Thai architecture at Silpakorn.

[3] *Report on the Survey of Chulalongkorn University*, Indiana University Contract (Bangkok, 1957).

[4] *Preliminary Assessment of Education and Human Resources in Thailand*, op. cit.

TABLE 11. Arts and social sciences enrolments, qualifications awarded, 1954-62, and staff 1960-62

Year	Enrolments		Qualifications awarded		Staff				Adjusted staff / student ratio
	(a) Actual	(b) Adjusted	Degrees	Diplomas	Full-time	Part-time	Total	Adjusted total	
1954	16 884	5 628	468	34	—	—	—	—	—
1955	19 756	6 586	530	119	—	—	—	—	—
1956	23 239	7 413	521	76	—	—	—	—	—
1957	24 492	8 164	774	61	—	—	—	—	—
1958	39 628	13 209	598	107	—	—	—	—	—
1959	37 673	12 558	914	100	—	—	—	—	—
1960	31 145	10 382	784	128	241	448	689	353	1 : 29
1961	32 512	10 837	1 165	414	—	—	—	—	—
1962	33 153	11 051	1 651	171	257	465	722	373	1 : 30

TABLE 12. Thammasat liberal arts course requirements in credit hours[1]

Subject	First year		Second year	
	First semester	Second semester	First semester	Second semester
English	9	9	9	9
Thai	2	2	—	—
Foundation courses:				
Natural sciences	4	4	4	—
Social sciences	4	4	4	—
Humanities	4	4	4	—
Introductory courses in specific disciplines (three credit hours each)	—	—	—	12

1. Per week per semester.

average annual increment of more than 15 per cent, leading to an output of over 20,000 graduates by 1980, is bound to produce serious over-supply and graduate unemployment. Even allowing for a private sector demand bringing total requirements to around 4,000 graduates in 1980,[1] the rate of increase would have to be reduced to an average of about 5 per cent per year.

The situation emphasizes the need for concentrating on improvement in quality and restricting the growth of enrolments in arts and social sciences. The measures Thammasat has recently taken to cut down its enrolment and to provide a sound liberal basis for education in all special disciplines are thus most important. With a new policy, initiated in 1959, of admitting no more than about 1,700, instead of the former 8,000 to 10,000, Thammasat in 1962 actually admitted only 1,000, and a continuation of this policy together with an increase in full-time staff should considerably improve the low staff/student ratio and the quality of instruction.[2] Furthermore under the new regulations, all new students are required to study full-time for two years in the Faculty of Liberal Arts (established in 1962) before proceeding to specialized studies. In these two years, studies are pursued in accordance with the credit hour system, shown in Table 12, and students are usually not permitted to repeat a course more than once.

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[1] Hunter estimates total annual graduate requirements by 1975 at no more than 5,700, including only 2,000 in arts and social sciences.

[2] However, in 1965 Thammasat admissions were reported to have risen to 2,178.

TABLE 13. Minimum years of study for science and engineering qualifications

Subject	Diploma	Bachelor's degree	Master's degree
Science	3	5	—
Engineering	—	4	2 after bachelor's degree
Architecture	3	5	—

Science and engineering[1]

At university level, only the Chulalongkorn faculties of Science, Engineering, and Architecture[2] provide courses in this field. Students seeking admission must have graduated from the science section of grade 12 or the equivalent technical grade, and are selected in strict competition on the basis of their performance in the common entrance examination. Minimum periods of study for qualifications awarded are set out in Table 13.

It is to be noted that, except for the courses leading to a master's degree in engineering, provided by the SEATO Graduate School of Engineering,[3] there

TABLE 14. Science and engineering enrolments and qualifications awarded, 1954-62

Year	Enrolments	Science and engineering degrees		Science and architecture diplomas
		Total	Science	
1954	1 872	107	30	1
1955	2 203	139	40	2
1956	2 456	191	85	2
1957	2 694	207	68	—
1958	2 891	201	87	141
1959	3 159	301	113	189
1960	2 919	267	70	297
1961	2 970	307	105	372
1962	3 179	399	165	254

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1. Including architecture.
2. With the exception of some provision to study Thai architecture at Silpakorn for which statistics have been included under 'Arts and Social Sciences', above.
3. By March 1965, this school had graduated 111 masters in engineering, including 74 Thais, 17 Pakistanis, 15 Filipinos, 3 Malaysians, 1 Indian and 1 Formosan. For further comment on this regional Graduate School, see Volume I of this study.

TABLE 15. Science and engineering enrolments: degrees awarded and staff, 1961/62

Subject	1961						1962					
	Students		Staff				Students		Staff			
	Enrolments	Degrees	Full-time	Total	Adjusted total[1]	Adjusted staff/student ratio	Enrolments	Degrees	Full-time	Total	Adjusted total[1]	Adjusted staff/student ratio
Science	1 531	105	142	161	147	1 : 10.4	1 413	165	144	174	152	1 : 9.3
Engineering	1 101	202	85	109	91	1 : 12.1	1 409	234	95	105	98	1 : 14.4
Architecture	338		28	34	30	1 : 11.3	357		30	37	32	1 : 11.2
TOTAL	2 970	307	255	304	268	1 : 11.1	3 179	399	269	316	282	1 : 11.3

1. Counting approximately four part-time to one full-time.

is at present no provision for post-graduate research.[1] Tables 14 and 15 give data on enrolments, qualifications awarded, and staff/student ratios.

Several important points need to be noted in connexion with these statistics.

First, the science enrolments include a substantial number of students who transfer to medicine after the second year.

Second, the high staff/student ratio for science is to some extent misleading, as a few students of arts as well as a substantial number of engineering students also take preliminary courses in the Science Faculty. Nevertheless, ignoring the insignificant number of arts students, there remains an average staff/student ratio of 1:11.3 for science and engineering combined. Thus, as already suggested, problems of standard cannot really be traced to a shortage of staff in this field.[2]

Finally, while only a small number of students go on to take a natural science degree (less than 7 per cent of the science enrolment in 1961, rising to about 11.7 per cent in 1962), a very considerable number take a diploma. At a rough estimate, since separate figures are not available, some 250 diplomas were awarded in 1961 (i.e., about 16.4 per cent of the science enrolment, bringing the total qualifying in science to 23.4 per cent) and 130 in 1962 (i.e., over 9.2 per cent of the science enrolment, bringing the total qualifying in science to 20.9 per cent). This does not mean that the situation is satisfactory or improving, but it is perhaps not as bad as might be thought if only full graduates are taken into account. The point is particularly relevant to the need for science teachers in secondary schools, where good diplomates with some teacher training are welcomed by the Ministry of Education.

The low standard of science teaching at the secondary level presents one of the biggest obstacles to improving the quality of higher education in science and technology. The large number of secondary students opting for the science stream in grades 11 and 12 (75 per cent) paradoxically increases the problem, since the supply of teachers and the provision of laboratory facilities are barely adequate for even half their number. Clearly, while the quantity and quality of human and material resources at this level are being built up—and this will take time—some consideration needs to be given to reducing the heavy pressure of enrolments in the science division. Such a reduction would not only lead to better standards in the university, but would also help: (a) to improve elementary science teaching at higher primary and lower secondary levels by releasing upper secondary teachers for this purpose; and (b) to upgrade the quality and therewith the economic value

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1. However, in 1965 it was reported that Chulalongkorn, in developing its post-graduate work had also offered a number of courses in science.
2. However, F. G. Nicholl, in his report (*A Program for the Development of Scientific Research in Thailand*, appointed under the United Nations Programme of Technical Assistance, 1961), suggested a current effective ratio of 1 : 20, mainly due to a large proportion of staff being on leave (p. 25).

of secondary science graduates who do not go on to some form of higher or further education.

Other serious shortcomings of science in the university generally stressed by Dr. Nicholls, may, apart from the general problem of an inadequate knowledge of English, be summarized as follows.

1. The lack of adequate research work in the university not only deprives the nation of important contributions it could make to development—for it is undirected research in appropriate contexts that again and again achieves a significant breakthrough in the better utilization of available resources—but also inevitably makes both teaching and study a passive affair. To change this situation, it will be necessary to provide teachers with better incentives and facilities for research—which the National Research Council is endeavouring to do, but in a very limited way—and to introduce facilities and incentives for students to engage in post-graduate research. A teacher who has no students interested and engaged in research is hardly less unfortunate than a student whose teachers for the most part finished with research during their own student days. To emphasize the importance of undirected university research in the natural sciences is not necessarily to suggest that research should concentrate only on pure science. On the contrary, a strong case could be made for concentrating on problems which abound in the natural context of the country, particularly in the fields of chemistry and the biological sciences. It is one thing to insist that all research must be geared to the solution of practical problems facing some sector of the economy, and quite another to suggest that, in selecting problems for investigation, priority should be given to those which might have some relevance to the country's development. This need not exclude other areas of inquiry, except perhaps where they are formidably expensive.

2. The low output of graduates in the sciences perpetuates the problem of a shortage of highly trained science teachers and undermines the kind of basic research that should support applied science in the field and in industry.

3. Poor salary scales and amenities for scientific research workers and science teachers, combined with a negligible demand for them in the private sector, make it difficult to attract more students to the natural sciences, the more able prefer to go on to the medical and engineering disciplines, with their ultimate promise of a higher remuneration.

It was largely in view of the failure to develop scientific research in the universities that, in 1964, under various stimuli, including the cogency of Dr. Nicholls' arguments, the Applied Scientific Research Corporation of Thailand was established. Sponsored by the government and directly responsible to the Prime Minister, the corporation is an autonomous institution and its staffing policies and salaries are not subject to civil service regulations. Plans for its development, in addition to extensive central services (including a documentation centre, a national standards laboratory, technical services, maintenance services and a library), provided for the establishment of three directorates or institutes for (a) technical research (including industrial chemistry, minerals and metallurgy, construction materials, textiles, and others later); (b) agricultural research (including land research, soil science, plant and crop research, animal husbandry, etc.); (c) food science research (including human nutrition, animal nutrition, and general food science, with other departments to come later); other institutes were to be established as expansion warranted.

It was, according to Dr. Nicholls, recognized from the outset that the corporation should seek co-operation, rather than enter into competition, with university research. The corporation was not to steal potential research staff from universities; on the contrary, it was to assist in encouraging research at universities, provide reasonable part-time research work for university science teachers, assist in developing the capabilities and raising the qualifications of scientific staff of the universities, and offer its special facilities to university research workers hampered by lack of adequate facilities in their own departments. However, it has also been maintained by others that the corporation has skimmed away the best national scientific talent through its much more generous emoluments and the richness of its facilities. The challenge is certainly there, for the corporation is looking for high quality in recruiting its research staff and is prepared to pay a reasonable price, whereas the universities are continuing to offer poor rewards for doctoral qualifications and good research capabilities. On the other hand, by 1970, the corporation envisages a research staff of only some 150. Thus, even if it is true that a creaming of talent has occurred, the drain must remain limited, and indeed should spur universities to make essential improvements in their own attractions to scientists in terms both of salaries and of facilities. In so far as such a development is realized it is obviously to be welcomed for national as much as individual reasons. Finally, if the stated collaborative policies of the corporation are reciprocated by the universities with government encouragement, much will be gained for all institutions interested in science—separate institutes are a menace only if they seek to build scientific empires unmindful of the spirit of true research and the needs of the nation. As a counter-attack to the rearguard obstructionism of civil service regulations as they affect appointments, emoluments and other promotional incentives, the corporation could, indeed, as envisaged by Dr. Nicholls, become an essential stimulus as well as contributor to the development of scientific education and research.

In the planned promotion of industries, emphasis is laid on those which use local raw materials and produce import substitutes. For this purpose, in addition to supporting private enterprise in established industries, it was decided to carry out extensive surveys for mineral and other industrial raw materials, including a region-wide survey of the north-east. The establishment of the Applied Scientific Research Corporation should do much to ensure that the available raw materials are used to the best advantage, but its activities will need to be supported by a growing number of other industrial research enterprises if the desired qualitative as well as quantitative development of industry is to be achieved. There is thus likely to be an increasing requirement for research scientists as well as for capable high-level managerial and technological personnel, a need which, despite some stress on this field and the highly specialized research and training required in the Atomic Energy for Peaceful Purposes Project, is not sufficiently recognized in terms of its implications for higher education.

The projected government needs continue to place far greater emphasis on graduates in applied scientific fields, although by 1980 science graduates are given slightly more importance than in 1963. Even then, an annual output of only 450 is foreseen, as against 900 in medicine, 550 in agriculture and 500 in engineering. Hunter, on the other hand, proposes that to support the deployment of manpower in agriculture, medicine and industry, the country will by 1975 require an annual output of no less than 2,000 science graduates.[1] Apart from the question of the validity of the estimate and its premises, it is extremely unlikely that such a target could be even approached—it would require well over a 20 per cent average annual increase in the output of science graduates during the next thirteen years.

Medical sciences

The University of Medical Sciences, with its three hospital branches and specialized faculties, makes provision for a full range of medical studies and training, which includes dentistry, pharmacy, nursing, public health, and medical technology. Minimum periods of study for various qualifications are shown in Table 16.

Admission to B.Sc. and diploma courses in nursing and pharmacy, which do not require two years of pre-medical studies, is based on performance in the common entrance examination and the availability of places, which is strictly limited. A two-year pre-medical course (which follows the same curriculum as the first two years of the Science Faculty) with a terminal qualifying examination is required for admission to courses in medicine, dentistry and public health. Except for the Chiengmai Faculty, which accepts students after the pre-medical course at the University of Medical Sciences without further examination, the others select candidates on the basis of a competitive examination held by the University of Medical Sciences Board of Entrance Examinations. This includes a maturity test as well as pre-medical subjects and English, and is followed by an interview for those who pass. The number of vacancies for medicine is strictly limited and only the best students are admitted. Starting with 1963, the number of such vacancies

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[1] The basic proportion used for Hunter's estimate is 3 to 5 scientists per agriculturist or engineer.

TABLE 16. Minimum years of study for medical science qualifications

Qualification	Years of study
Bachelor of Medicine, M.B.	2 pre-medical+4 years
Doctor of Medicine, M.D.	3 years after M.B. with thesis
B.Sc. in Pharmacy and in Medical Science	5 years
M.Sc. in Medical Science	2 years research after B.Sc.
Ph.D. in Medical Science	3 years research after B.Sc.
Doctor of Dental Surgery, D.D.S.	2 pre-medical+4 years
B.Sc. in Medical Technology	2 pre-medical+2 years
B.Sc. in Nursing	4 years
Diploma in Nursing, R.N.	3 years
B.Sc. in Sanitary Science	4 years
Master's in Public Health, M.P.H.	1 year after M.B.
Diploma in Public Health Nursing	2 years after first Diploma in Nursing
Diploma in Medical Technology	2 pre-medical+1 year

was set at 120 students in Siriraj, 80 in Chulalongkorn, and 50 in Chiengmai.[1]

The growth in enrolments (which in 1962 included nearly 47 per cent women students),[2] qualifications awarded and staffing from 1954 to 1962 are given in Table 17.

These statistics strikingly illustrate three points: (a) in relation to enrolments, the output of degree and diploma graduates has remained steadily high; (b) fluctuations in the high staff-student ratio have been small; and (c) even if, as suggested earlier, the number of full-time staff may be considerably exaggerated, it would not seem possible to maintain that there is a serious shortage.

Research at the University of Medical Sciences is well established.[3] Dr. Nicholls,[4] in suggesting that the National Research Council should establish a research institute in basic medical sciences, recommends that it be situated near the Siriraj Medical Faculty 'since this would bring it into close association with existing research workers in that school and with the clinical groups there, and also this would give it access to the only medical library that begins to be adequate for research purposes'. He further suggests that the SEATO Medical Research Laboratory in Bangkok might be brought into close relationship with the university and the proposed institute to

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[1] In fact, in 1965 admissions to the University of Medical Sciences rose to 519, and plans for the establishment of a third faculty of medicine in Bangkok were under consideration.

[2] Mainly in nursing and pharmacy.

[3] By 1965 the University of Medical Sciences had also begun to operate a Graduate School of Medicine.

[4] *A Program for the Development of Scientific Research in Thailand*, op. cit., p. 94.

TABLE 17. Medical science enrolments,[1] qualifications awarded, and staff, 1954-63

Year	Enrolments	Qualifications awarded		Staff				Adjusted staff/ student ratio
		Degrees	Diplomas	Full-time	Part-time	Total	Adjusted total	
1954	1 616	239	159	313	172	485	356	1 : 4.5
1955	1 756	265	112	334	148	482	371	1 : 4.7
1956	1 962	229	153	423	155	578	462	1 : 4.2
1957	2 208	258	159	414	132	546	447	1 : 4.9
1958	2 469	295	157	478	154	632	516	1 : 4.8
1959	2 620	313	170	496	144	640	532	1 : 4.9
1960	2 832	376	174	660	154	814	698	1 : 4.1
1961	2 978	432	275	...	...	...	...	...
1962	3 150	392	177	...	...	...	...	...
1963	2 966	...	...	777	190	967	824	1 : 3.6

[1] Pre-medical enrolments in Chulalongkorn University are not included.

... Data not available.

promote co-operation and co-ordinated endeavours in medical research. There are probably many good reasons for establishing an independent research institute and, in this case, some close association with the university would be the least that could be hoped for; but it still remains a question as to whether such an institute might not weaken rather than support the development of research at the university. It would almost certainly draw off some of the best research talents from the university and would also receive preferential treatment from the National Research Council. This kind of problem is far from infrequent even in advanced countries and, if the institute cannot be developed as an integral part of the university, the nature of the association will doubtless largely determine to what extent the university develops as a significant centre of medical research or tends to abandon this function to the possible detriment of its staff.

In the sphere of public health, extensive plans for improving the health of the Thai people, particularly in the provinces, and eradicating epidemic and other communicable diseases have been adopted, including an emphasis on the development of medical research. Substandard health centres in about two-thirds of the 498 districts are to be converted into first-class centres as rapidly as possible, starting with two districts per year and giving priority to densely populated and to isolated areas. While all provinces had at least one hospital, there were, in 1961, only eight district hospitals: the plan aims at improving all provincial hospitals, establishing two new regional hospitals in Ubol in the north-east and Songkhla in the south, and six new district hospitals. In addition, the North-East Plan proposes the establishment of three additional regional hospitals. With these measures, the number of hospital beds is to be increased by 4,500 to give a total of 18,000 by 1966 with a bed/population ratio of about 1:1,800. An active stock of 5,000 graduate nurses, representing a nurse/population ratio of 1:4,900, is to be raised by 2,700, aiming at a ratio of about 1:3,500. At the same time, an estimated stock of 3,172 doctors in 1961, giving a doctor/population ratio of 1:8,500, is to be raised by at least 1,500 doctors by 1966, aiming at a doctor/population ratio of 1:6,000.[1] However, it is also to be noted that most of the doctors were practising in the Bangkok-Thonburi area, so that for the provincial areas, the doctor/population ratio amounted to less than 1:32,000. All told, to achieve these objectives, which the plan only begins to tackle, the output of graduates will need to be stepped up far more rapidly. This is realized in the new estimates and efforts to increase the annual output of physicians from 250 in 1964 to 350 in 1968, and in aiming at 450 by 1980. Hunter points out that even this involves only a leisurely rate of growth, and that the target might be set higher at an average output of 500 per annum between

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[1] Different figures given in Hunter are due to a lower estimate of stock, a higher one of population: with medical graduate outputs of 2,500 during 1961-70; 1,800 during 1971-75; and 2,100 during 1975-80, doctor/population ratios of 1:9,400 in 1970; 1:8,900 in 1975; and 1:8,700 in 1980.

1970 and 1975, giving a doctor/population ratio of 1:7,000.[1] This proposal would involve an annual increment rate of between 8 and 8.5 per cent, as against the 4 per cent rate implied by the government targets. In terms of past trends of a 7 per cent per annum increase in the number of all medical graduates plus the establishment of new medical faculties, Hunter's proposal certainly appears feasible, and a fourth medical faculty is now in the process of establishment in Bangkok.

Agriculture and veterinary science

Until 1964, when Chiengmai University was established, with plans for the development of an agricultural faculty,[2] Kasetsart was the only institution providing university-level courses in agriculture, veterinary science, and allied fields. In addition to full degree courses, it also offers three-year training programmes, designed for agricultural officers, for which Associate Certificates are awarded in the following subjects: agriculture, economics and co-operative science, fisheries, forestry, and irrigation engineering. In 1962, trainees for such Associate Certificates accounted for three-fourths of the total enrolment. The minimum period of study for a first degree in agriculture is five years, and in veterinary science four years, preceded by a two-year pre-veterinary course in the Faculty of Agriculture. Master's degrees requiring two further years of study and research after the bachelor's degree are awarded in agricultural science and in agricultural economics. Facilities for research are fairly good, and even for undergraduates the stated policy of the university is to prepare them 'in the fundamental approaches and methods employed in research work . . . and for further purposeful follow-ups of scientific investigation'. It has also been planning an expansion of its Faculty of Agricultural Engineering and the establishment of a faculty of science and arts.

Admissions, based on the applicants' performance in the common entrance examinations, are strictly limited, and of many candidates only a small percentage is admitted: in 1960, some 420 out of 3,500 and in 1965 still no more than 553. Apart from the faculties of Agriculture and of Economics and Co-operative Science, where women students formed about 25 per cent of the enrolment in 1962, very few women students are admitted.

Growth in total enrolments and qualifications awarded from 1954 to 1963 and the numbers of teaching staff during this period are indicated in Table 18.

Here it is interesting to note that, while the enrolment was more than trebled and the number of diplomas awarded little more than doubled the output of 1954, the number of degrees conferred increased over fivefold.

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1. The ratio would be better with government estimates of stock and population growth.
2. Initially the Maejo College of Agriculture was incorporated as a faculty, but later again dissociated, and a new faculty of agriculture is apparently not yet in operation.

TABLE 18. Agriculture and veterinary science enrolments, qualifications awarded, and staff, 1954-63

Year	Enrolments	Qualifications awarded		Staff				Adjusted staff/ student ratio
		Degrees	Diplomas	Full-time	Part-time	Total	Adjusted total	
1954	662	63	151	119	69	188	136	1 : 4.9
1955	855	84	153	136	61	197	151	1 : 5.7
1956	1 005	117	196	113	123	236	144	1 : 7.0
1957	1 076	125	280	142	135	277	176	1 : 6.1
1958	1 265	165	185	133	72	205	151	1 : 8.4
1959	1 518	190	196	156	109	265	183	1 : 8.3
1960	1 714	227	224	173	157	330	212	1 : 8.1
1961	1 905	220	256	...	...	285	...	...
1962	2 103	231	345	...	...	284	...	...
1963	2 280	333	348	226	99	325	251	1 : 9.1

... Data not available.

Secondly, while the proportion of full-time staff has been very considerably increased by 1963, the adjusted staff/student ratio has steadily declined from a high ratio of 1:4.9 in 1954 to a still high ratio of 1:9.1 in 1963. Thirdly —and this is most important—the decline did not have an adverse effect on standards in terms of the output of graduates, which has increased at a faster pace than enrolments, although the minimum period of study for a first degree was increased during this period by one and two years for a number of courses, e.g., in 1955 from three to five years for irrigation engineering, and three to four years for veterinary science. Furthermore, there has been a marked increase in the number of post-graduate students, in particular from 1961 to 1962, when it rose from 29 to 40.

While such an output and the rate at which it has been growing should, together with the output of new institutions at Chiengmai and Khonkaen, easily be able to meet the projected government requirements for agricultural graduates, estimated at 350 in 1970 and 550 in 1980,[1] criticism has been levelled at deficiencies in practical training at farms associated with the university. Thus, Dr. Nicholls has recommended that 'more thought should be given to the use of training farms and [that] the practical work should be more broadly based, embracing all important phases of agriculture'.[2]

In pursuit of this and other ways of improving teaching and research, Kasetsart has been particularly fortunate in receiving help from international and contract programmes, including technical assistance from FAO, Oregon State College, and since 1962, the University of Hawaii. Various foundations have also provided equipment and the services of visiting professors.

Further support for the growth of research and the improvement of standards is provided through the proposal that the National Research Council should set up an agricultural research institute on the Kasetsart campus where, as Dr. Nicholls observes, 'it can provide a nucleus of full-time research personnel to infect the university staff with enthusiasm for research and can aid in developing research programmes in the university'.[3]

However, Dr. Bentley and Dr. Rohner[4] point out that, whereas there is great need for practical information from regional experiments, tests, and research, graduates from Kasetsart are generally reluctant to work in the villages with farmers. In their proposals for Khonkaen they therefore emphasize the importance of three-year associateship courses, with intensive practical training. They further suggest: (a) that the first two years of such a course should also form the basis of a full degree course of four rather than five years; and (b) that apart from the best one-third to one-half of the students completing the first years without failures, who might go on directly to the B.Sc., only a few others should have an opportunity to do so, and only after at least two years of employment in agricultural work. Even for the four-year graduates, the consultants give first priority to investigation into such immediate problems as basic land classification and soil management; suitable crops and cropping procedures for dry-land agriculture; simple and inexpensive tools to increase the efficiency of farm operations; systematization of the supply of consistently good seed; upgrading live-stock by developing breeds of proven suitability to the area; economically practical control measures for plant and animal pests. Further specific needs for the north-east suggested by the IBRD mission[1] included varietal and agronomic research on sugar-cane; investigation of possible improvements in the quality of tobacco; research into improved year-round production of leaf from mulberry trees, including trials of new varieties.

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[1] Hunter, however, feels that these estimates are too high, and that a maintenance annual output of 110 graduates and 88 diplomates would be sufficient: so that 'Kasetsart University is already producing an annual output of more than double these numbers at both levels'.

[2] *A Program for the Development of Scientific Research in Thailand*, op. cit., p. 30.

[3] ibid., p. 31.

[4] *Khonkaen Institute of Technology*, op. cit.

Education and teacher training

The position in this field of study is complicated. Apart from the Faculty of Education at Chulalongkorn which comes under the jurisdiction of the National Education Council, all institutions for teacher training and educational research are the responsibility of the Ministry of Education. Consequently, post-secondary programmes (Higher Certificate of Education) in teacher-training colleges follow on secondary-level teacher-training courses (Certificate of Education) with no clear separation between the facilities and staff provided for the two levels.[2] The comparative merits of the Higher Certificate of Education and the Diploma in Education awarded by Chulalongkorn and the College of Education remain undefined, although they are considered to be equivalent qualifications for teaching in secondary schools. Finally, for each higher level of teacher training there are different avenues of admission and corresponding variations in the period of study and training. It is doubtless largely due to this situation that statistical analyses of requirements and output have not dealt with the different higher levels of teacher training in a co-ordinated way. In working out further projections of requirements for teachers, it would seem most desirable to determine the relationships between different levels and classify the different categories accordingly.

The first step in examining the situation of university-level teacher training is to obtain a clear general picture of the main qualifications awarded and the various relevant admission and study requirements. One factor common to all situations is that, in addition to meeting minimum qualifications for admission to courses, candidates must pass competitive examinations. These, except in the case of Chulalongkorn, are held under the supervision of the relevant department of the Ministry of Education (i.e., teacher training, vocational education and physical education).

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[1] Report of a mission organized by the International Bank for Reconstruction and Development, *A Public Development Programme for Thailand* (Baltimore, John Hopkins Press, 1959).

[2] See above, p. 111.

The following qualifications are awarded by Chulalongkorn and/or the College of Education.

The *Higher Certificate of Education* for general secondary teaching (with the aim of restricting its validity up to grade 10) is awarded after two years of study and training, following graduation from a teacher-training course previously followed in any of thirteen teacher-training colleges as well as in the College of Education. For vocational secondary education the requirements specify two years of study following on the Higher Vocational Education Certificate (grade 13), but courses are provided by the Thewes Vocational Teachers' College, located in Bangkok and administered by the Education Ministry's Department of Vocational Education, and in four technical and agricultural colleges.

The *Diploma of Education* is awarded: (a) after a minimum of one year's training and practice following the completion of at least two years' study in a four- to five-year course at a university; and (b) at the end of the second year of the four-year course for the Bachelor of Education degree when, due to inadequate grades or other reasons, the full four-year course is not completed.

The *Bachelor of Education* degree is conferred on completion of four years of study after grade 12 or after the Certificate of Education. Two-year courses are offered in the College of Education to the holders of the diploma, the Higher Certificate of Education or the Vocational Secondary Teachers' Certificate. The two-year B.Ed. course in Chulalongkorn is followed mainly by those who have had three years' work in other faculties of the university. The aim of the Education Ministry is to make this a minimum qualification for teaching in all classes above grade 10.

The *Master of Education* degree is awarded on completion of two further years of study after the bachelor's degree. Candidates are admitted only if they have obtained first-class marks in their final examination, have had at least one year's professional experience, can submit a favourable recommendation from their administrative superior, and score satisfactorily on a graduate language test in both English and Thai. The latter and some other minor conditions can occasionally be waived to admit students on a provisional basis. The holders of this qualification are mainly intended for higher teacher-training appointments, service in the Ministry of Education, and for research work in education. Ultimately it is to become a minimum qualification for teaching appointments to higher teacher-training institutions or courses.

Chulalongkorn also awards a *post-graduate Diploma in Education*[1] to holders of the bachelor's degree who successfully pursue one year of further studies in the Faculty of Education.

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[1] Not to be confused with the more usual diploma described above.

The College of Education lists the following as its major objectives: '1. The preparation of elementary, secondary, and vocational teachers for schools of Thailand. 2. The preparation of college teachers for the teacher-training institutions of Thailand. 3. The preparation of educational leaders, administrators and supervisors, who work at all levels of education. 4. The preparation of instructional materials for use at the elementary, secondary and college levels. 5. The in-service education of teachers and educational leaders. 6. The provision of consultant services for the educational agencies of Thailand. 7. The conduct of research on educational problems.'[1]

The four-year Bachelor of Education programme at Chulalongkorn University '... is primarily a demonstration curriculum as well as to serve as a foundation for the future graduate programme in teacher and higher education. Its aim is to develop, through experimentation, the best pattern of teacher education for Thailand.

'The secondary purpose is to provide well-qualified teachers for elementary and secondary schools as well as the teacher-training institutions of Thailand.

'The programme consists of an integration of general education and professional education throughout the four years of training. In general, students of this programme receive a general education with a major in a professional

TABLE 19. Total enrolments and qualifications awarded in diploma-level teacher training, 1958-62[1]

Year	Enrolments		Higher Certificates of Education awarded[3]
	Higher Certificate of Education[2]	Diploma of Education	
1958	1 733	659	1 022
1959	2 779	597	1 046
1960	3 231	883	1 151
1961	3 153	666	1 316
1962	3 461	682	1 402

1. Based on statistics in the Thai-USOM Human Resources Study: *Preliminary Assessment of Education and Human Resources in Thailand,* Vol. II, op. cit., pp. 221 and 279. However, the HCE figure for 1960 is corrected from 1,632 to that given in the table on the basis of advice from the Ministry of Education. The first apparently duplicated diplomates.
2. Includes vocational HCE training.
3. Statistics on diplomas awarded at Chulalongkorn are not available; but this probably corresponds closely to enrolments since, once admitted, students usually receive this qualification.

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[1] *The College of Education, Official Catalog,* p. 4 (Bangkok, March, 1962).

and two content fields of teaching and are prepared to teach classes not higher than the secondary-school level.'[1]

Table 19 shows enrolments and output at the level of the Higher Certificate of Education (HCE): a general indication of enrolments and graduates by different levels at Chulalongkorn and the College of Education is given in Table 20. From these data it is clear that the College of Education has rapidly gained in importance. Right from its first output of graduates in 1957, it produced considerably larger numbers of graduates than the Chulalongkorn Faculty of Education, and in 1962 its full-time enrolments alone were well over double those of Chulalongkorn. The size and objectives of the college would seem to indicate that it is well on the way to becoming the most significant teacher-training and educational research institution in the country.

This point is further corroborated by the fact that the college has its own Department of Educational Research and is the site of an Institute for Child Study and of the headquarters of the South-East Asian Regional English Project, each of which merit special attention in view of their considerable potentialities.

The *Department of Educational Research* was set up in 1954 and began its work in 1955 with the basic aims of organizing and promoting research in the field of teacher-training and of performing the following tasks:

'1. To construct and standardize valid and reliable measuring instruments at all levels.
'2. To carry out basic research projects in group learning.
'3. To stimulate, facilitate and co-ordinate the research effort of all members of the college staff, and to help them develop adequate research.
'4. To provide technical assistance and guidance to graduate students in designing and carrying out research.
'5. To provide in-service training for teachers in expanding their understanding of desirable evaluation practices.
'6. To provide co-operation and technical assistance to other educational agencies and organizations in carrying out their own research projects.
'7. To provide for the publication and the distribution of all research findings.'[2]

The *Institute for Child Study* was originally established as an international venture in 1955 through the joint efforts of the Thai Ministry of Education and Unesco; now, though still administratively independent of the college, it works in close collaboration with it. On the national level, the institute carries out research, teaching and guidance. On the international level, it endeavours to secure co-operation from institutes in other countries carrying

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[1] *Four-Year Curriculum of Teacher Preparation Leading to Bachelor of Education Degree (B. Ed.)* p. 1 (Faculty of Education, Chulalongkorn University, March 1961).
[2] *The College of Education, Official Catalog*, op. cit., p. 14.

TABLE 20. Enrolments, qualifications awarded and staff in university-level teacher training, 1954-62[1]

Year	Enrolments			Qualifications awarded					Staff		Staff/student ratio[2]	
	Chulalongkorn[3] (A)	College of Education (B)[4]		Degrees[3]		Total	Post-graduate diplomas[3]		Chulalongkorn	College of Education	Chulalongkorn	College of Education
		Full-time	Part-time	A	B		A	B				
1954	...	104	—	41	30	71	15	—	...	...		
1955	...	251	222	44	38	82	12	—	...	...		
1956	...	487	492	36	70	106	9	—	...	...		
1957	243	1 234	746	44	172	216	4	7	...	102		1 : 19.4
1958	359	1 469	1 115	89	357	446	3	—	...	203		1 : 12.7
1959	477	1 632	1 243	49	618	667	...	7	...	245		1 : 11.7
1960	650	1 623	1 587	142	629	771	...	—	52	271	1 : 12.5	1 : 11.8
1961	690	1 553	1 777	171	668	839	4	14	...	284		1 : 11.7
1962	683	1 566	1 953	214	567	781	18	4	86	287	1 : 7.9	1 : 12.3

... Data not available.

[1] A = Chulalongkorn; B = College of Education.

[2] Not adjusted for part-time.

[3] From *Preliminary Assessment of Education and Human Resources in Thailand*, op. cit.

[4] Enrolments and qualifications for 1954 to 1956 are for Prasarn Mit only. First graduates of the College of Education, established as such in 1954, appeared in 1957.

out similar research in order to facilitate the elucidation of comparable data.

The *Regional English Project* is operated under contract with USOM and the University of Michigan, and is the headquarters of a programme covering Laos, the Republic of Viet-Nam, and Thailand. It is designed to prepare English-language materials, train teachers, and undertake basic research in linguistics and methodology.

Chulalongkorn, too, has received special assistance from a Ministry of Education contract with Indiana University for its Faculty of Education. With this technical assistance and advice the faculty (which was first established as a department in 1930 and became a full faculty only in 1957) has substantially increased its staff, achieving a student/teacher ratio of 8:1 (adjusted for part-time, 10.3:1) in 1962 as against 12.5:1 (adjusted for part-time, 14.0:1) in 1960.

Apart from the usual difficulties of shortages of textbooks in Thai, inadequate knowledge of English, and insufficiently prepared new entrants, there is another, perhaps more fundamental, problem presented by the growing scope and prestige of the College of Education. With more current educational research centred in the college and the lack of any organic contact between the faculty and the college, it would not be surprising if the research department of the faculty loses much of its vitality. This would be particularly regrettable since the Education Faculty has the opportunity to draw creatively on contact with other faculties of the university, although at present this is not realized effectively because contacts are largely mechanical and restricted to meeting teaching needs in specific subjects.

Hunter proposed for the future an annual average output between 1961 and 1970 of about 1,000 graduates and 1,600 diplomates as minimum, or 1,800 graduates and 2,800 diplomates as maximum, targets. Since in 1960 a total of 771 degree graduates and around 2,000 diplomates had been produced, the first target would involve only a small gradual increase in the graduate output by 1966,[1] while the diplomate target would be overshot. With the maximum target, graduate outputs would need to be increased by about 134 per cent, but diploma outputs by only 40 per cent.

Although in the five years from 1957 to 1962 the output of graduates was raised by over five times in the case of Chulalongkorn and by more than three times in that of the college, it is doubtful whether, without the establishment of another faculty of education or new faculty branches, the high target could be attained. It must also be noted that the target estimates did not take account of the staffing needs at the higher teacher-training levels for the Higher Certificate of Education, diploma and graduate degree.

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[1] As it is an output of 839 had been reached in 1961, and the decline for the subsequent year, according to the Ministry of Education, was largely due to the fact that it had prematurely been assumed that overproduction was in sight, and in any case the planned educational budget could not provide for new posts at a greatly increasing rate of supply.

In so far as it may not prove possible to meet requirements fully, it will be particularly important to give further consideration to using university diploma holders from various subject fields as teachers, either following a short intensive period of teacher training or by providing in-service training. To achieve this, it would probably be necessary not only to expand and adapt present training facilities, but also to develop appropriate recruiting techniques and civil service regulations which would provide adequate incentives for taking up teaching positions in the provinces and districts.

STUDENTS

While no socio-economic study of the origins of university students in Bangkok has yet been carried out, it is estimated that about half the students come from the provinces, most of them from the towns and from upper income groups. Even at Kasetsart, the agricultural university, a sample survey of third-year students[1] showed that over 70 per cent had never engaged in agriculture occupationally, and only 20 per cent reported that their parents were engaged in agriculture.

Students from rural areas and lower income groups apparently have little opportunity to secure a university education: there are only a small number of scholarships offered, mainly financed by private donations and student expenses in Bangkok range from a bare minimum of $75 per annum to an average minimum of nearer $150 per annum (a mean of about $200 for Kasetsart in 1961), as compared with a national *per capita* annual income of $110 in 1962. Residential facilities are also scarce, only about 1,600 places being available for a student body of 43,000. Most of these are reserved for students of Chulalongkorn, Kasetsart, the University of Medical Sciences and the College of Education in the following proportions: 300, representing less than 5 per cent of its enrolment, at Chulalongkorn; around 500, mainly for first-year students, at Kasetsart, covering about 20 per cent of its enrolment; 140, mainly for senior students of the Medical Sciences University, less than 5 per cent in relation to the total enrolment; and 550 for the 1,500 full-time students of the College of Education, i.e., nearly 40 per cent of the enrolment.

In preparing plans and recommendations for the new institutions of higher education at Chiengmai and Khonkaen, special measures have been proposed to prevent the recurrence of a similar situation in these towns. In his note on the establishment of Chiengmai, the Minister of Education in 1962 wrote: 'In Bangkok about half the number of students comes from the provinces; and because of the limited number of vacancies in university dormitories some of these students are left to their own devices in the effort to find accommodation. Some of them manage to stay with their distant relatives,

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1. A. Nakajud, *A Study of Students' Backgrounds in Relation to their Agricultural Experiences* (Kasetsart, Bangkhen, Bangkok, 1961).

with friends, at private hostels and monasteries. Some pool their resources to rent a house.... A certain number of students has to move from one place to another most of the time; they have to go through all kinds of difficulties regarding, for example, food and transportation.... A great number of students hardly has time for proper study;... It is disquieting to ponder over the fact that Chiengmai is smaller than Bangkok and, in future, it will be a host to 80 per cent of students from other provinces. The solution is to provide an adequate number of residence and licensed lodgings, and to make Chiengmai University a residential institution.'[1]

A plan for residential colleges has been adopted, initially providing accommodation for most students, and later to be supplemented by a system of approved lodgings in association with one of the colleges, all students spending at least two years in college.

For Khonkaen, noting that few farm families in Thailand can afford to provide higher education for their children, Bentley and Rohner[2] recommend that assistance be made available in the form of free accommodation and board in dormitories. It is suggested that adequate provision for some 600 students be made from the beginning, and that during the first two years of operation, free places should be made available to enable gifted children from remote rural areas to complete their secondary education in Khonkaen, irrespective of their subsequent destination. With an enrolment of 1,200 in 1972/73, about half the students would be in residence and, in return for such help, would undertake to work in rural areas for at least as long as they had been in residence. It is felt that this would ensure the selection of able students who would, after their training, be well suited to work in villages with farmers, and that the 'individual farm family should be greatly stimulated and encouraged to increase productivity. This is the ultimate and essential goal for success of the North-East Development Plan'.[3]

Student activities, welfare and guidance services

While all universities have a student union or student council under self-government with staff advisers, there is as yet no inter-university student body. There are various societies and clubs which are generally the responsibility of the student council. Student self-help is encouraged by the university authorities, and in some institutions, student co-operative enterprises are in operation. Student health services are provided, but for the most part, they have facilities only for minor medical care and offer no comprehensive health insurance schemes.

Student guidance and counselling are arranged by placing small groups of students under the care of individual university teachers, but in practice there generally seems to be little contact. Proposals for a central student guidance agency in Bangkok are under consideration, aimed particularly at providing appropriate advisory services for students coming from a distance.

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[1] *Note on the Establishment of Chiengmai University*, op. cit., p. 3.

[2] *Khonkaen Institute of Technology*, op. cit., pp. 70-1.

[3] ibid., p. 71.

While no studies have been made of general employment trends and how these relate to manpower needs, the market situation seems to be particularly favourable in the professional, vocational/technical, and teaching fields. In arts and sciences, except for the most able graduates, there are few openings outside the civil service. Within the teaching profession, there are considerable opportunities for graduates who would be prepared to teach in rural areas; but many of them prefer to remain unemployed until they can find an opening in Bangkok or in other major towns.

STAFFING

It has been noted that in terms of quantitative student/staff ratios there is apparently no discrepancy, even after making appropriate adjustments for part-time staff. There are, however, three qualitative factors which escape such a quantitative assessment and constitute a serious obstacle to the improvement of standards.

First, there is a shortage of personnel with appropriately high qualifications for senior teaching and research positions. Generally, such teachers have to be recruited from among graduates with higher foreign qualifications and their number must still be supplemented by foreign staff. Second, the salaries are so inadequate that even nominally full-time staff members devote a good part of their legally free time to outside work in order to supplement their income. Until recently there was a system by which teachers received an additional remuneration of about $1.50 per hour for overtime work within the university and inevitably in the circumstances, most teachers tended to capitalize on this. Consequently, in general, outside the required working hours (8 a.m. to 3 p.m.) little staff time has been devoted to furthering the education of students or undertaking and guiding research in the university. Third, the civil service system of promotion by seniority has, on the one hand, failed to provide material incentives to young but able staff members and, on the other, has left the seniors feeling that, having achieved their position under difficult conditions, they have a right to exploit all its advantages. The best of them of course put this to good use, but few feel inclined to devote themselves entirely to research and teaching in the university. Thus it comes about that while there is at present no real shortage in numbers of staff, there is a need to improve the quality of instruction and educational guidance.

For the future, considerable difficulties are envisaged in securing properly qualified staff for the planned expansion of existing higher education facilities in the fields of agriculture, engineering, medical sciences, and teacher training, as well as for the new institutions of higher education at Chiengmai and Khonkaen, where additional problems will be encountered in trying to attract highly qualified personnel. As in the past, much reliance is being placed on recruiting young graduates for government scholarships to pursue post-graduate studies abroad in preparation for senior teaching positions, as well as in securing foreign staff. The cost of both these measures is formidable. Sir Charles Darwin,[1] in examining this situation, found that the cost of educating a graduate abroad was nearly five times as great as doing so in Thailand. Further, in the case of foreign staff for Khonkaen, the proposed annual costs, based on the general practice of international agencies, are set at four times that of senior Thai staff (i.e., $18,000[2] as against $4,500). Most of such expense would probably be met through technical assistance but, if qualified Thai staff were available, such assistance might be profitably used for other purposes. This situation again emphasizes the need to expand and improve post-graduate studies and research in Thailand in order to reduce the need for foreign training and personnel to a minimum. It also implies that in the interest of adequately trained staff for the various fields of applied science, there must be an increase of research and post-graduate training in the natural sciences, which at present is still not sufficiently recognized as an essential requirement. All told, there is clearly an immediate need to draw up a comprehensive schedule of the various categories of staff requirements in higher education and the kinds of training and costs involved. Without such a schedule and appropriate measures to deal with it, not only will higher education standards continue to suffer, but secondary education will also continue to be affected. In the end, if the vicious circle of inadequate secondary preparation leading to unsatisfactory standards in higher education, in turn leading to poor teaching for secondary education and perpetuating the situation, is to be broken, it will have to be at the level of higher education and its staffing, particularly in higher teacher training.

While some members of staff are recruited through competitive civil service examinations, each university has the right to make its own selection of qualified persons for junior as well as senior positions, though in principle subject to the approval of the Prime Minister as president of the National Education Council. Promotion seems to rest largely on seniority. Professor Ivash,[3] with whom Dr. Nicholls[4] concurs, makes the following comment on the position: 'As it is now, there is a tremendous incentive to simply mark time, do nothing, and wait for one's promotion which, with the passage of

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1. *Science in Thailand and Notes on Universities in Thailand*, op. cit.
2. Including passage costs, pension fund contributions, medical insurance and various allowances.
3. E. V. Ivash, *Observations and Comments on Chulalongkorn University, its Faculty of Science and its Physics Department*, report under University of Texas-Chulalongkorn University Contract, p. 3 (Bangkok, 1959).
4. *A Program for the Development of Scientific Research in Thailand*, op. cit., pp. 25-6.

TABLE 21. Salary scales of university teachers,[1] 1962

Rank	Average annual salary (dollars)	Ratio to starting graduate salary in civil service	Ratio to *per capita* income
Junior lecturer	630	1.40	5.73
Lecturer	1 155	2.57	10.50
Senior lecturer	2 085	4.63	18.96
Assistant professor	2 370	5.30	21.55
Associate professor	3 150	7.00	28.28
Professor (second grade)	3 300	7.33	30.00
Professor (first grade)	4 305	9.57	39.14

1. Calculated on the basis of civil service regulations for monthly salary scales.

sufficient time, surely will come. As a faculty member said recently, "Why should we engage in research, publish papers; or show any particular initiative? All we have to do is wait." Clearly, such an attitude, which appears to be the general rule rather than the exception, is absolutely fatal to the spirit of a great university.'

Professor Ivash concludes that, in order to improve the quality of higher education in Thailand, the most important step to be taken is to disconnect the financial link between the staffing of higher education and the civil service system, and to support promotions and increases in salary on the basis of merit. In 1962, the salary scales for university teachers were as shown in Table 21, and it has been maintained that, despite increases, in terms of real income, they are equivalent to only about one-fourth of pre-war salaries.

Recommendations for the staffing of Khonkaen made by Bentley and Rohner[1] suggest that the salaries of junior staff should average $2,000 per year[2] and senior staff $4,500 per year which, in relation to the above scale, means that the starting salaries as well as those of senior staff would need to be raised considerably.

EXTENSION AND EXTRA-MURAL WORK

Extension work by institutions of higher education has so far been limited almost entirely to the teacher-training colleges in the provinces although, in 1960, Kasetsart University started a regular farm visit programme for its third-year students.

Teacher-training colleges have since 1956, on the pattern of the Thailand-Unesco Rural Teachers Education Project at Nbola in North-East Thailand, developed schemes of associating village schools with their teaching practice to promote community development and to conduct their own practice teaching under actual rather than merely demonstration school conditions. In 1960 there were seven teacher-training colleges engaged in such schemes, covering 56 village schools; in 1964, 26 of the 27 teacher-training colleges and schools in the country were working in co-operation with 169 primary schools with about 38,000 rural children living in 442 villages in 19 provinces.

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[1] *Khonkaen Institute of Technology*, op. cit., p. 94.

[2] Later rising to $2,500 as the proportion of junior staff is reduced, ibid., p. 108.

Given the need for improving the quality of rural education—an even more urgent requirement than its expansion—there is great scope for the intensification of this extension programme, which is already contributing significantly to general community development with the support of the ministries of the Interior, Public Health, and Agriculture.

The programme of repeated visits to assigned farms by third-year students at Kasetsart is primarily designed to improve the practical training of students rather than to carry out any solid extension work. Its objectives, as explained by Professor Arb Nakajud[1] include the promotion of 'acquaintanceship between students and village people which will permit bilateral exchange of information'. But the following other objectives indicate the educational and training emphasis: '(a) To increase the students' knowledge of farming through personal experience gained from studying the operation of an actual farm. (b) To expose students to personal knowledge of farm operation at a time late enough in their university careers to permit use of some university education but early enough to increase appreciation of future course work and usefulness in field research. (c) To gain the advantage of increased knowledge for the student without reducing significantly the time available for study in other courses or encroaching on the students' free time during vacation periods.... (e) To stimulate the intellectual curiosity of students. (f) To assemble information on farm operations that can be used for subject matter in classes at the university.'

Recommendations for the two new institutions of higher education particularly emphasize the importance of extension work. A basic objective of Chiengmai is 'to promote extra-mural courses in collaboration with government bodies or organizations as an extension for the benefits of the region and the university'.[2]

Stressing rural extension work as the greatest immediate problem that the government faces in the north-east, Bentley and Rohner[3] have stated that the staff and facilities at Khonkaen should play an important role in all such activities; 'the costs of establishing and staffing the institute will be much more easily justified if they are actively used for such purposes during the inter-semester periods as well as during the academic part of the year'. In this connexion, it is recommended that the institute should organize evening adult education programmes, short training and refresher courses for field personnel of various government agencies, as well as carry out agricultural and engineering extension and testing. To ensure that such activities are undertaken on a regular and efficient basis, it is proposed that all staff should be full-time with only one month's vacation in the calendar year and that, apart from teaching and research, their duties should specifically include responsibility for extension work (with students where practicable) and extension training programmes. While the general objectives of this recommendation are clearly desirable, the feasibility of the suggested short vacation period may be questioned, especially from the point of view of recruiting staff whom it would in any case be difficult to attract to Khonkaen.

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[1] *A Study of Students' Backgrounds in Relation to their Agricultural Experience*, op. cit., pp. 1-2.

[2] *Note on the Establishment of Chiengmai University, 1962*, op. cit., p. 1.

[3] *Khonkaen Institute of Technology*, op. cit., p. 120.

STUDY ABROAD

A large number of Thai students go abroad for further studies, not only because facilities for post-graduate studies at home are not adequate in many fields, but also because there is a definite premium on a foreign degree. In 1963 there were nearly 1,000 students on scholarships provided by various governments. Students with degree qualifications from American, British, European and Canadian universities, according to a study by Major Chinnawoot Soonthornsima,[1] qualify in the civil service for a salary scale that is 78 per cent higher at the lowest level and 17 per cent higher at the doctoral level.[1] According to an estimate of Nicholls,[2] they often command a salary that is almost twice that of those with similar qualifications from Thai universities. Other Asian qualifications are, however, evaluated as equivalent to similar Thai qualifications. Probably the availability of private scholarships influences the situation considerably, but it is still interesting to note that by far the largest number of students going abroad go to the United States, followed at a distance, in order of their enrolment of Thai students, by the United Kingdom, Australia, Japan, France and India.

Students going abroad on government scholarships (those already in government service continue to draw full pay) are required to work in government service for twice the number of years they have studied abroad, which is one way, if not necessarily the best, of ensuring highly qualified Thai staff for the universities as well as for other key positions in the country's development. Details of Thai university students studying abroad during the years 1956 to 1963 on various types of government scholarships are given in Table 22.

While inadequate data make it impossible to compare past with present

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1. Chinnawoot, Soonthornsima, *The Relation of College Education and Pay Levels in Thai Civil Service*, p. 75 (Institute of Public Administration, Thammasat University, Bangkok, 1959).
2. *A Program for the Development of Scientific Research in Thailand*, op. cit., p. 25.

TABLE 22. Thai students studying abroad[1]—Thai Government, bilateral and multilateral scholarships[2]

	1963	1962	1961	1960	1959	1958	1957	1956	Total
A.									
Professional, technical and related science and engineering	202	73	83	25	37	23	7	11	461
Medical	128	37	43	27	42	5	7	13	302
Agriculture	118	42	40	33	31	12	5	2	283
Social science, etc.	235	83	85	46	39	19	12	16	535
Education	156	35	18	23	25	16	8	17	298
Sub-total	839								
B.									
Administration and executive	93	36	48	34	28	4	1	5	249
Clerical	6	1	1	—	—	—	—	—	8
Sales	—	—	—	—	—	—	—	—	—
Farmer and related	6	1	—	1	—	—	—	—	8
Mining	9	—	1	1	—	—	—	—	11
Transportation and communications	13	7	13	4	6	—	2	—	45
Craftsmen	26	—	8	—	1	—	—	1	36
Service	1	17	1	—	1	—	—	—	20
Sub-total	154								
TOTAL	993	332	341	194	210	79	42	65	2 256

1. Data on privately sponsored students studying abroad are not available.
2. Abstracted from *Preliminary Assessment of Education and Human Resources in Thailand*, op. cit., p. 135.

TABLE 23. Subject distribution of Thai officials studying abroad between 1936 and 1959[1]

Subject	U.S.A.					United Kingdom					France					Total
	−B	B	M	D	T	−B	B	M	D	T	−L	L	DS	D	T	
Agriculture	—	12	35	11	58	7	3	—	—	10	—	—	—	1	1	69
Art, architecture	2	5	20	—	27	2	2	1	—	5	3	—	1	—	4	36
Arts, education	8	18	173	15	214	15	26	2	1	44	9	—	6	4	19	277
Business, commerce	9	32	42	4	87	23	10	3	—	36	4	—	1	—	5	128
Engineering	15	49	108	5	177	28	23	9	10	70	1	—	3	—	4	251
Home economics	2	1	3	—	6	6	1	—	—	7	—	—	—	—	—	13
Medical sciences	70	9	150	19	248	30	10	31	9	80	—	—	2	2	4	332
Veterinary science	—	1	7	3	11	—	—	—	—	—	—	—	—	—	—	11
Science	2	14	26	8	50	5	9	9	7	30	4	—	—	—	4	84
Social sciences, etc.	1	25	66	7	99	4	36	5	3	48	7	2	6	28	43	190
TOTAL	109	166	630	72	977	120	120	60	30	330	28	2	19	35	84	1 391

[1] B = Bachelor's degree.
−B = Below bachelor's qualification.
M = Master's degree.
D = Doctor's degree.
L = *Licencié.*
−L = Below *licencié.*
DS = *Diplômes supérieurs.*

trends, it may be noted that in 1963 in Category A there were some 400 students in social sciences and education as against about 450 in the natural sciences, medicine, agriculture and technology, the former figure being raised to nearly 500 if the category of administrative and executive trainees is also included. Here, as in the case of higher education within Thailand, it would seem that the provision for natural sciences and basic research training is relatively neglected.

This point is reinforced by Table 23, taken from Major Chinnawoot's study,[1] showing the subject distribution of Thai officials who had studied abroad in non-military institutions during the period 1936-59.

For quite some time to come, while Thailand is building up its own post-graduate levels of study, research and training, it will be important to continue sending substantial numbers of students for further study abroad. In doing so it would seem appropriate to give first priority to the training of research workers in the natural and applied sciences, rather than to higher technical and vocational training. For the latter, with the possible exceptions of practical training in industry, business and industrial management, the main effort might be more profitably concentrated on improving quality at home, with initial assistance from foreign teachers and advisers. However, with limited admissions to universities in Thailand, it would also seem that a number of students who fail to secure admission in Thailand and can afford to go abroad will continue to do so and choose fields of study in which some foreign institution is ready to accept them. In these cases it would be very useful if an advisory service were set up, both to guide such students in their choice of subjects and to help them select appropriate and reputable institutions abroad.[2]

EDUCATIONAL DEVELOPMENT OBJECTIVES AND FINANCE

PLAN OBJECTIVES FOR EDUCATIONAL DEVELOPMENT

Recognizing the importance of education for economic growth, the plan proposed to improve and expand education at all levels without laying down absolute priorities, although emphasis was to be placed on secondary and higher vocational education. In accordance with the Karachi Plan, it was proposed not only to improve primary education, but also to extend compulsory free education from four to seven years as rapidly as possible, a formidable task which could not but come into competition with the need to improve quality. With such extension of primary education, it was anticipated that the annual number of pupils wishing to enter secondary schools would increase from 80,000 to nearly 400,000. Considerable stress has, therefore, been laid on expanding secondary education, in both academic and vocational schools, particularly at the district and provincial level. Noting the great need for qualified teachers for such expansion, as well as qualitative improvement, very considerable efforts were to be made to expand both in-service and regular teacher-training programmes. Finally, for higher education, expansion was to be concentrated in the fields of agriculture, engineering and medicine.

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[1] *The Relation of College Education and Pay Levels in Thai Civil Service*, op. cit., pp. 146-9.

[2] Not least, to try to prevent them wasting time, if not money, by enrolling in some 'degree mill'.

By 1963, as a Unesco Mission stressed in its report,[1] it was increasingly realized that financial and human resources would not permit advancing simultaneously on all these fronts. It was also appreciated that, without great improvement in the quality of educational facilities and standard of teaching, expansion would involve even higher rates of wastage at the primary and secondary levels, which the economy can ill afford. Thus a new stress has been laid on teacher training as a first priority, particularly for secondary vocational education, and on qualitative improvement, rather than expansion at primary and secondary general levels.

Apart from the establishment of a graduate school at Chulalongkorn and a Faculty of Liberal Arts at Thammasat (steps which have already been taken), qualitative improvement at universities was to be achieved by more competent and intensive teaching, the reorientation of administrative practices, better study facilities, and the expansion of research programmes at the University of Medical Sciences, Kasetsart, and in economics and social sciences at Chulalongkorn. Conspicuously absent from these special areas of concern is any specific stress on the natural sciences and the need to develop research in the Chulalongkorn Faculty of Science.

Quantitatively, in addition to providing further facilities for higher education through the development of the institutions at Chiengmai and Khonkaen, it is intended to expand Kasetsart, including the establishment of a science faculty, so that it will produce an additional 100 agricultural graduates per year, starting with increased admissions in 1965 to 1969, which by 1968 together with 50 each from Chiengmai and Khonkaen would provide a total additional number of 200 graduates per year.[1] For medicine, expansion of the University of Medical Sciences and the Chiengmai Faculty is to increase the annual output of graduate physicians to 350 by 1968. In engineering, including irrigation and agricultural engineering, facilities at Chulalongkorn and Kasetsart are to be expanded so that, together with the ouput of Khonkaen, the annual number of graduates is to be increased from 210 to 410 by 1968.[2,3]

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1. Unesco, *Educational Investment Programming Mission*, Thailand, August-September 1963, p. 49 (Unesco, Bangkok, December 1963, mimeo.).
2. Presumably including some diplomates from Khonkaen.
3. 'Official working paper, loan project for educational development', included as Appendix IX in the Unesco *Educational Investment Programming Mission*, report on Thailand, op. cit., p. 144. See also p. 51 of the paper.

The number of supporting technical personnel at the technical level (grade 15 graduates) and higher vocational (grade 13 graduates) level are to be very substantially increased in the fields of the building trades, mechanics, communication and electricity, land survey, and agriculture. According to an official working paper prepared by the Bank of Thailand,[1] the number of qualified personnel at the technical level should be increased from an annual output of about 4,000[2] in 1961 to 7,300 annually between 1965 and 1970. This would give an output ratio of technicians to graduate engineers and agriculturists of about 7:1. At the higher vocational level, the proposals envisage a phenomenal expansion from an output of about 3,800 in building trades, mechanics and agriculture in 1961 to 13,500 annually between 1965 and 1970. Thus, for each engineering and agriculture graduate produced by the university, there would be 7 technical or senior-secondary level and nearly 14 higher vocational level technicians. For agriculture, special emphasis is placed on the higher vocational field worker, with a ratio of about 1:4:27 for the three levels.

To support such expansion over the six-year period 1965-70, it is proposed to accelerate teacher training for secondary vocational schools by establishing a number of new training colleges as well as schools. Thirty-six new higher vocational schools (grades 11-13), including 18 agricultural schools, would be established, and 15 higher vocational colleges (grades 14-15), five in each of the three developing regions. Two new teacher-training colleges are to be established in the immediate future to provide short-term courses for technical graduates and two-year courses for graduates of the higher vocational schools. A five-year course is eventually to be provided for graduates of grade 10 (MS 3). It is estimated that with this system an additional 400 teachers could be provided each year.

These objectives raise a number of questions which would seem to require further study. Thus, in general terms, the whole problem of staffing still needs careful analysis. There is a limit to the number of expatriates available and within financial reach: even in 1964, when major improvements in staffing had yet to be introduced in established institutions and Khonkaen remained a proposed scheme, the implementation of the Chiengmai project involved very serious problems in securing qualified staff. To help meet the problem for the time being, study and training abroad will not only have to be continued but expanded. Nevertheless, except for the specialized fields and senior teaching and research positions, it ought to be increasingly possible for graduates to qualify adequately within Thailand. Indeed, for science teaching at the higher secondary level, more science graduates are needed even if they have only had a minimum of professional training as teachers.

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[1] ibid., p. 141.

[2] Apparently includes some higher vocational graduates, since the number of technical graduates proper in 1961 was only 1,673.

If this is not done, quality in the higher levels of science and applied science will continue to suffer seriously through the inadequate preparation of secondary-school graduates entering the universities.

The position of diploma graduates must also be taken into consideration when evaluating the total output of higher education, and an attempt to do so has been made in the Hunter report. The importance of three-year diploma holders in agriculture has been especially emphasized in the recommendations for Khonkaen; and the value of arts, science, and social science diplomates as potential teaching staff for lower secondary schools is surely considerable. Furthermore, the relative needs for and functions of graduates, diplomates, technical and higher vocational graduates have to be worked out and co-ordinated to determine priorities more clearly.

The need for further analysis is also illustrated by the planning situation in specific fields. Thus, in relation to public health, except for nurses, apparently no attention is given to the need for an output of both high- and middle-level para-medical personnel. Adequate provision for the future, however, can be made only if the full range of requirements for medical personnel, including dentists, pharmacists, pharmacologists, medical technologists, public health officers, etc., has been taken into account and assessed. Agricultural estimates apparently do not cover important requirements for veterinarians, and the division of demands in other main fields is not clear, particularly for forestry and fisheries within the over-all field of agriculture. In relation to engineering, no appropriate attention is given to architecture, which in view of a growing number of important building and urbanization schemes is bound to become an increasingly important field, a view confirmed by the proposal that during 1965-70 the annual output of technical graduates (grade 15) in the building trades should be raised from 1,576 in 1961 to 2,000.

Finally, it appears that in setting targets for 1965-70, sufficient consideration has perhaps not been given to the time factor involved in realizing the required output of graduates from newly established institutions. While Chiengmai produced its first medical graduates in 1965,[1] in the case of Khonkaen it is at most possible to envisage the first output of graduates in 1971. Yet the output of both institutions has apparently been included in average forecasts for 1965 onwards. It thus seems clear that various adjustments will have to be made in plans for future graduate outputs by the different institutions of higher education.

FINANCING EDUCATIONAL DEVELOPMENT

During 1958 to 1962, public educational expenditures have amounted to an average of about 19 per cent of the national budget and 2.8 per cent of

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[1] Consisting of students originally enrolled at the University of Medical Sciences, Chiengmai branch faculty.

TABLE 24. Education expenditure as a percentage of gross domestic product and of national budget (actual 1959-62 and projected 1962-70[1])

Year	GDP at market prices (millions of dollars[2])	National budget percentage of GDP	Ministry of Education and universities percentage of GDP	Ministry of Education and universities percentage of national budget	Universities percentage of national budget[3]
1959	2 340.51	14.78	3.01	20.4	2.1
1960	2 655.69	14.64	2.56	17.5	1.6
1961	2 145.84	14.99	2.65	17.7	1.7
1962	3 075.86	14.40	2.65	18.4	1.8
1963	3 200.00	16.84	2.88	18.4	3.4
1964	3 450.00	16.56	2.85	17.2	2.0
1965[4]	3 700.00	16.99	2.90	17.2	1.2
1966	3 985.00	17.35	2.96	17.2	1.2
1967	4 250.00	17.89	3.07	17.2	1.2
1968	4 525.00	18.49	3.16	17.2	1.2
1969	4 800.00	19.17	3.28	17.2	1.2
1970	5 100.00	19.85	3.42	17.2	1.2

Source: Budget Bureau, Office of the Prime Minister; cf. *Educational Investment Programming Mission*, op. cit., p. 158.

1. Projections assume constant market price.
2. U.S.$1 = 20 baht.
3. Apparently includes administrative costs of the National Education Council.
4. Actual educational expenditure in 1965 amounted to about 2.90 per cent of GNP and 17.14 per cent of the national budget. Universities, technical, secondary, primary, and adult education received the following respective percentages of the education budget: 11.79, 11.90, 8.42, 56.91 and 2.48.

GNP. To the latter, on the basis of percentage of enrolments in private schools, one may add a rough estimate of 0.36 per cent of GNP spent on these schools, bringing the total to 3.16 per cent. While these proportions have been fairly steady, indicating that educational expenditure has been growing with GNP, at the Tokyo meeting of education ministers it was agreed that Asian countries should aim at devoting 4 to 5 per cent of their GNP to education. With the proportion of national income available for the national budget rising from about 15 per cent to nearly 20 per cent by 1970, a 4 per cent target for education might just be achieved with some increase in private expenditure. Table 24, based on statistics from the Budget Bureau, indicates the developing position between 1959 and 1970.

The projections indicate that, while after 1964 it is proposed that absolute expenditure on education, including universities, should continue to increase with GDP and the increase in its proportion devoted to the national budget, the percentage of the latter spent on education, after decreasing from a previous five-year average of 18.5 to 17.2 per cent in 1964, is to be maintained

TABLE 25. Ratios of public expenditure by levels of education, 1962

Costs	Primary and adult	Secondary general	Vocational	Teacher training	University		
					Average[1]	Chulalongkorn	Medical sciences
Per pupil (1=$12)[1]	1.0	5.7	10.0	12	64.0	30.00	162.3
Total budget (1=$3 112 000)	13.8	3.7	1.8	1	2.6	0.55	1.5

1. Excluding Thammasat because of difficulty of assessing per pupil costs.
2. U.S.$1 = 20 baht.

at this level until 1970. As costs are rising steeply, it appears doubtful whether such a budgetary provision would be sufficient to finance the ambitious educational objectives. For the Educational Council and the universities, for instance, it means that the total expenditure of about $7.4 million in 1959 is to be raised to only around $12 million in 1970. And indeed in 1964 the government approved an annual 10 per cent increase of the total appropriation for education. If this increase is maintained over ten years, it would about double educational expenditure, and if applied in terms of percentage allocations raise it to over 6 per cent of GNP by 1974.

Before proceeding to an outline of the over-all financing of higher education and its planned development, it is interesting to note the rough ratios of expenditure of different levels of education in 1962.[1] (Table 25.)

While cost per student rises very steeply with the level and type of education, the total costs, because of much smaller enrolments, are far lower at the vocational and higher levels. This means that with proportionately small cuts in the programmes of developing primary and secondary education, it is possible to make quite decisive increases in the budgets of higher education and teacher training, which could do much to advance their quality and appropriate expansion. Once this high-quality expansion has been achieved —and doubtless this would come not only from increased enrolments, but also from a reduction in failures and wastage—it would be possible to revert to increasing expansion at the primary and secondary levels without sacrificing quality and squandering meagre resources on academic wastage. On the other hand, such a measure would involve a delay in the extension of compulsory free education as well as a significant deceleration in the increase of students admitted to secondary education. Such a policy could therefore be justified only as a short-term measure necessary before a long-term programme can be adequately implemented.

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[1] Based on statistics of the Budget Bureau, *Educational Investment Programming Mission*, op. cit., pp. 156-65.

TABLE 26. National budget for universities, 1962-64

Universities	1962 (thousands of dollars)	1963 (thousands of dollars)	1964 (thousands of dollars)	Per student expenditure in dollars, 1963
Chulalongkorn	1 674	2 212	2 823	355.50
Thammasat	684	822	1 125	109.60[1]
Medical Sciences	4 817	5 776	6 022	1 947.40
Kasetsart	732	964	1 056	371.77
Silpakorn	115	275	368	785.71
All universities	8 022	10 049	11 394	511.87[1]

Source: Budget Bureau, *Educational Investment Programming Mission*, op. cit.

1. For a rough estimate, the effective enrolment of Thammasat is assumed to be 7,500 in 1963, as suggested under Section II, 2.

It is reported that the government, in its university budgeting, calculates per-student allocations on the basis of $1,250 for medicine ($1,000 for all medical sciences as a whole), $500 for science and applied science, and $300 for humanities and social sciences. As Table 26 shows, this assessment does not seem to be quite in line with reality, particularly in the case of medicine.

Even disregarding the special Thammasat situation, the discrepancy between the formula and the adequacy of allocations remains obviously large.[1] The most interesting point however, is the extremely high cost of medical education. It would seem that in so far as this is not due to over-all hospital costs being charged to medical education, it would be useful to examine the situation further and reconsider the balance between allocations. High-quality medical education is obviously important, but it would be unfortunate if the investment made in this field were so high that urgent needs in other sectors of higher education received relatively inadequate attention. Furthermore, given the high cost of medical education, of which a mere fraction is paid in fees, a strong case could be put up for making admission subject to candidates being prepared to work anywhere in the country for at least five years.

Educational development costs[2] between 1965 and 1970 for vocational and university education are based, as shown in Table 27, upon high expectations of foreign aid.

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[1] For Chulalongkorn, the average cost of the humanities and social science student must be substantially below $300—as the average for science and engineering students (forming about 50 per cent of the enrolment) must be somewhere near the Kasetsart figure.

[2] Adapted from 'Official working paper, loan project for educational development', op. cit., p. 136. Regular recurring and improvement costs are not included.

TABLE 27. Estimated costs of educational development projects, 1965-70 (thousands of dollars)

Year	Vocational		University	
	National	Foreign	National	Foreign
1965	1 000	1 850	2 075	1 200
1966	4 670	7 660	2 025	1 200
1967	9 850	11 430	1 525	1 025
1968	9 850	11 430	1 150	925
1969	5 680	4 400	—	—
1970	7 770	6 600	—	—
TOTAL	38 820	43 370	6 775	4 350

Apart from this source of finance, which may compensate for the relatively low budget allowance noted before, there is also a heavy emphasis on developing vocational education. However, it may be well to give further consideration to making some increase in the allocation for university education that would facilitate radical improvement in quality, including, in particular, the provision of adequate residential facilities in Bangkok and the promotion of research in the sciences and arts.

Costs of specific development projects for university education in the four years between 1965 and 1968 may be summarized on the basis of the working paper[1] as shown in Table 28.

Finally, no specific development provisions are proposed either for the advancement of university research in science, or in the social sciences and humanities. For the latter, one might hope that facilities could be improved and expanded under the regular budget; but in the case of the natural sciences any significant development of research facilities would require substantial investments for which special provision will still have to be made.

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[1] ibid., pp. 144-50

TABLE 28. Costs of specific university developments

Field of study	Additional graduates per year	Capital cost[1] (thousands of dollars)	Annual recurrent cost (thousands of dollars)			Cost per additional graduate (dollars)	
			Salaries	Other	Total	Capital	Annual recurrent[2]
Agriculture	200	4 300	300	200	500	21 500	2 500
Engineering	200	3 425	300	200	500	17 125	2 500
Medicine:							
(a) Khonkaen[3]	50	3 850	—	—	750	77 000	15 000
(b) Bangkok	50	950	—	—	—	19 000	—

1. Including teacher training abroad.
2. Initial phase.
3. Proposed new medical faculty.

Laos

NOTE. *Since higher education in Laos is still in the preparatory stages, and since conditions in the country did not make visits by the study's consultants or staff practicable, a full profile has not been attempted. The sketch which follows attempts to give some account of the troubled background to educational development in Laos—the notes on education have been compiled from official sources, from a quantitative study by the URAT Team, from the report presented to the Bangkok meeting of Asian Ministers of Education, and from numerous discussions between the Lao Minister of Education, groups of Lao students and the director of the study when students from Laos were being trained for rural development in Thailand.*

THE KINGDOM OF LAOS

The independent kingdom of Lan Xang—'land of the million elephants'—was established in the mid-fourteenth century, by Lao people who built their capital round the Prabang, a statue of the Buddha, from which it derived its name the Luang Prabang. The mountainous and densely forested country is completely landlocked: its 89,000 square miles are bounded on the north by the Chinese province of Yunnan, on the east by Viet-Nam, on the south by Cambodia, and on the west by Thailand and Burma. The main artery of the country is the Mekong, fed by a number of tributaries cutting deeply through the mountain ranges.

The largest ethnic group is of Thai/Lao origin, settled principally in the river valleys; the others are aboriginal mountain people, either of Indonesian or Chinese origin, living on the upland slopes and practising shifting cultivation. There are also minority Chinese and Vietnamese groups. The Lao people are Buddhist—their culture is based upon the village pagoda and, despite their internal troubles, they are essentially a gentle, courteous and sensitive people.

There has been no comprehensive census of Laos: United Nations demographers have used official estimates and their knowledge of surrounding countries to reach a revised estimate of 1,550,000 in 1955, projected to rise to between 2,488,000 and 2,876,000 by 1980.

The history of Laos has been troubled: geographical and, later, ideological factors have forced upon it the unhappy role of the cockpit of South-East Asia. In the early eighteenth century it suffered from continual Burmese inroads, and split into three kingdoms: the original Luang Prabang; the Kingdom of Vientiane, in the Mekong; and Champassac in the north. Vientiane finally fell completely under the domination of Siam (Thailand), and the other kingdoms attached themselves for protection to Annam.

The hazards of communication made attempts at reunification difficult, and this was not achieved in any measure until the close of the nineteenth century, in 1893, when, through the efforts of an able French vice-consul (France was the 'protecting power' of Annam) the Siamese were expelled from the country, and after involved negotiations Laos became in 1904 one of the constituent elements of French Indo-China, the kingdom of Luang Prabang as a protectorate, and Champassac and other areas where the king's writ did not run, as a colony.

RECENT HISTORY

In 1945 the Japanese suppressed French authority in Laos, and on Japanese withdrawal a short-lived independence movement collapsed on the return of the French, a constitutional monarchy was established in 1947 under King Sisavang Vong,[1] of the Luang Prabang dynasty, and in 1949 Laos became an independent State within the French Union. However, a few of the leaders of the earlier independence movement regrouped themselves under Prince Souphanouvong, and these, attaching themselves to the Vietminh movement in Viet-Nam, under the name of Pathet-Lao, joined in the invasion of Laos in 1953. The rebel forces did not quite succeed in reaching Luang Prabang, and were ultimately forced back into the northern hills, where they set up a Communist State.

The Geneva Agreement of 1954 provided for the reunification of the country which, after numerous frontier incidents, was accepted by the Vientiane Agreement of 1957 between the Prime Minister, Prince Souvanna Phouma and Prince Souphanouvong. The political aftermath of the agreement led to the formation of both left- and right-wing parties, the Pathet-Lao troops were never integrated into the State army, the Vientiane Agreement broke down, and a right-wing government was formed. This in turn was ousted by a military coup—the usual form taken by political change in South-East Asia—and Prince Souvanna Phouma returned with a policy of neutralism and reconciliation.

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[1] Later succeeded by his son, Savang Vatthana.

Again a military coup drove out the moderate and conciliatory Souvanna Phouma, who this time joined forces with the Pathet-Lao, and set up a joint administration with Souphanouvong.

To restore some form of order to the ravaged country the British and Russians, who had held the co-chairmanship of the 1954 Geneva Conference, were able to arrange for a cease-fire and the convening of another Geneva Conference at which, in 1962, a Government of National Union was created with Souvanna Phouma as Prime Minister, after protracted negotiations with Boun Gun, representing the right wing, and Souphanouvong of the Pathet-Lao.

The neutralist government of Souvanna Phouma, though soon boycotted by the Pathet-Lao, whose representatives had been continually included in the government, survived despite a major attempt at another coup by rightist troops under General Phoumi Nosavan in February 1965. The coup failed after an open battle in Vientiane, and the leaders fled to Thailand.

A new General Assembly, after limited elections, was convened in August, with the strong backing of a moderate but anti-Communist group of young Lao (Lao Noum). Souvanna Phouma was again called to serve as Prime Minister, and *in absentia* Prince Souphanouvong was re-elected as his deputy—which at least kept the door open for further negotiations towards an acceptable form of unification.

The unfortunate country was, however, subjected throughout this period, and particularly towards the end of 1965, to a series of attacks from anti-government troops. The Pathet-Lao launched a new political and military offensive in October 1965, but this was beaten off with considerable success, reputedly due to the efficacy of the Royal Lao Air Force and the supercession of General Phoumi, who had returned as Minister of Defence.

During this period Laos maintained increasingly friendly relations with the United States, France and the United Kingdom—relations with neighbouring Thailand were, however, sensitive, the Thais being greatly disturbed at the possibility of Communist infiltration into the north-east provinces across the Mekong, where the border is perforce lightly guarded, and where the majority of the population are, by descent and speech, Lao.

THE ECONOMIC BACKGROUND

The economy of the country, artificially supplemented by Western aid, is based upon agricultural products: rice, maize (the tonnage produced is not one-fiftieth that of rice production), a little tobacco, citrus, tea, coffee and some potatoes. Opium remains a very heavy, if hidden, source of revenue.

Teak logs are floated down the Mekong, the timber having been worked by elephants, and wild life is abundant. Tin is mined at one centre, but production has remained constant for a number of years; deposits of iron ore and other valuable minerals are not worked.

United States aid remains the basic prop of the economy: in 1965 it amounted to some U.S. $30 million. France is responsible for a large military training mission and for most of the staffing of secondary schools.

Despite the production of some 520,000 tons of rice, enough to feed the population in times of peace, it was necessary to import rice from Thailand (50,000 tons), much of it to feed refugees, and imports in 1964 at 4,135.7 million kip[1] overwhelmed the export figure (mainly contributed by tin and wood products) of 213 million kip. The prospects of developing exports, apart from dried and processed timber, tin concentrates and iron ore, are not bright.

Government policy in both the social and economic fields is largely directed to programmes of rural development: rural affairs officers are beginning to replace their American counterparts, numerous rural centres have been established, and encouragement given to such activities as vegetable gardening, pig breeding, poultry raising and cattle vaccination. Extension workers were trained by Operation Brotherhood, a Filipino organization, working with United States aid, which also runs district hospitals. The programme is almost one of subsistence living, and the distribution of AID goods rather than production is the chief commercial activity.

The main highway is the formidable Mekong, which is navigable in favourable seasons for four stretches, punctuated by rapids: ships of 300 gross tons can, with high water, ply between Paksé, on the Thai border, and Saigon, thus finding an outlet to the China Sea. In 1961 there were 2,800 kilometres of roads (438 kilometres sealed) and external communications were largely effected by means of Royal Air Laos and Air Viet-Nam, linking Vientiane, the administrative capital, with Saigon. There are also weekly flights between Vientiane and Hanoi.

Laos is, of course, involved in the United Nations Lower Mekong Development Plan, and dam sites, both on the main stream and on tributaries, are on the verge of construction after years of survey and planning: they will serve both to irrigate and as sources of power.

THE EDUCATIONAL SYSTEM

It is against such a background of incessant civil war, and an externally supported economy, that the position of education has to be reviewed.

Before the French Protectorate was established, the 'pagoda' school was the main educational unit of the country, and the French endeavoured to base educational development on the modernization of these schools, though, when the French Education Service was established, the medium of instruction inevitably became French. In 1945, on the eve of independence, a basic education of six years was being given to 11,401 pupils by 453 teachers in 187 schools. Furthermore, in 1921 a *cours complémentaire* had been set up in a Vientiane school as an extension of primary education, and this developed into a fully-fledged *lycée* with the two cycles of secondary education. Other than this, pupils had to go to *lycées* in Phonm Penh (Cambodia), Hanoi, Saigon or Dalat (Viet-Nam) for secondary education. Higher education was a thing of the future.

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[1] U.S.$1 = 240 kip.

Subsequent to independence the usual development of the school system took place: enrolment had grown from 11,000 to 107,000 in 1959/60, when civil war broke out. By 1964/65 primary enrolment had, despite the loss of schools in Pathet-Lao controlled territory, increased by 50 per cent to 153,738, including some 14,000 pupils in private schools with official recognition (largely Chinese and French schools). Some 340 new schools had been built between 1962 and 1965, and teaching staff had increased from 3,186 in 1961/62 to 4,204 in 1964/65.

The total allocation for educational expenditure from the national budget, excluding expenditure on defence and internal security, rose from a percentage of 19.8 in 1960/61 to 28.8 in 1964/65 when primary education alone accounted for 21.6 per cent of the total allocation of 28.8 per cent.

The 1963 expenditures amounted to some 2 per cent of the estimated gross national product, and the Asian target proposed for 1980 by the Karachi Plan of 5 per cent of GNP seems extremely remote: it would mean more than quadrupling present expenditure.

Primary education absorbs some two-thirds of educational expenditure, secondary education some 20 per cent, technical education 7 per cent and higher education 15 per cent. It should be noted, however, that the secondary budget is relieved of meeting the salaries of some 200 French secondary teachers: their replacement at local rates would add an additional 50 million kip a year to a budget of 300 million kip.

The URAT team employed the following figures of *per capita* expenditure (recurrent costs per pupil, 1963) when projecting future costs of education: primary, 1,700 kip; secondary, 6,500 kip;[1] technical, 18,000 kip; higher, 55,000 kip.[2]

The Minister of Education, Fine Arts, Sports and Youth is responsible for the general administration of education, which is grouped under a director-general in five directorates: Primary and Adult, Secondary, Vocational and Technical, Higher Education, and Teacher Training. A provincial inspector is in charge of primary education in each province.

Primary education is organized in the usual two cycles of three years each, the medium of instruction being Lao, with French a strong element in the second cycle. Village primary schools, pagoda schools and rural community education centres only take pupils through the first cycle—their curricula are identical—their staffs are respectively government teachers, monks, and volunteers (often monks) chosen by the village.[1] The total number of such establishments in 1963/64 was 2,067, or one for every five villages.

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[1] Secondary-school salaries paid by France.

[2] A total enrolment of only 400 in 1963 naturally increased the incidence of *per capita* costs for such a small number of pupils.

Complete schools offering both courses are to be found only in the towns and townships; there were 139 in 1963/64. Enrolment for 1963 was 119,537; the figures by grade show the effect of this system:

First cycle. Grade I, 57,410; grade II, 22,563; grade III, 15,984.
Second cycle. Grade IV, 9,631; grade V, 7,775; grade VI, 6,174.

It will be noted that more than 50 per cent of pupils drop out before the second year, and less than one-third complete the first cycle. Enrolment falls from 16,000 to 9,600 between grades III and IV, but two thirds of the pupils entering upon the second cycle complete the course, though the percentage of success in the Primary School Leaving Certificate examination in the same year was only 45 per cent of the candidates, or slightly less than one-third of the original second-cycle enrolment.

Following upon the development of the Vientiane *lycée* in 1964, first-cycle secondary courses were opened in five other centres, three of them blossoming into full *lycées* by 1950/61. By 1963/64 there were four *lycées* and three *collèges* (first cycle only), a fourth having been closed as a result of the war. Admission is by competitive examination, and the medium of instruction remains, for the present, French, as are the great majority of staff—120 out of 142 in 1963/64.

Again the course follows the usual pattern of four years, the first cycle terminating with the *B.E.P.C.*[2] Then follow the two years for the first part of the *baccalauréat* (examined by a visiting French board of examiners), followed by the terminal year, offering a choice of philosophy, mathematics or experimental sciences. Only one *lycée* (Vientiane) offers the full seven-year secondary course, two others complete the first part of the *baccalauréat*, the remainder offering at the moment still shorter courses.

In 1963, 865 students (649 boys and 216 girls) were admitted to the first

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[1] In 1956/57, for example, the distribution of pupils between these schools was:

Type of school	*Number of schools*	*Boys*	*Girls*	*Total enrolment*
Elementary school (3 years	776	34 366	11 901	46 267
Complementary primary school (6 years)	85	7 626	2 400	10 026
Pagoda school	228	5 850	2 163	8 013
Rural education centres	146	7 465	3 396	10 861
TOTAL	1 235	55 307	19 860	75 167

[2] *Brevet de l'enseignement du premier cycle secondaire.*

year of secondary education (probably some 25 per cent of those seeking admission) and a study of the average percentage of passes in the three examination hurdles suggests that some 40 per cent of them will pass the *B.E.P.C.*, some 45 per cent of the survivors will pass the first part of the *baccalauréat*, and of these 59 per cent will successfully complete part II.

The government hopes to treble enrolment in secondary schools by 1980, and is also taking steps to make Lao the medium of instruction in secondary as well as primary education—teachers are already being trained to carry out this programme and a major textbook programme is being undertaken. It is also hoped to modify secondary curricula to meet the needs of life in Laos: education is to become more realistic, require more active participation on the part of the students, and be more closely related to the Laotian environment. It scarcely sounds as if the traditional *baccalauréat* curriculum will survive such a reform!

There are two technical schools with sections for carpentry, the building trades, general engineering, motor engineering, electrical engineering and commercial education. Enrolments in 1960/61 in the various fields were as shown in Table 1.

A second school has been opened in Vientiane, and in 1964/65 the total number of technical students had risen to 674, 595 boys and 79 girls. At Savannakhet, a four-year course will continue to follow the completion of a primary course. At the schools in Vientiane a basic polyvalent course of three years will be followed by a year's specialized apprenticeship in electrical engineering, construction and carpentry. Short specialized courses for mechanics in automobile engineering, refrigeration, radio repair-work, etc., will also be organized.

Instructors for these schools are being prepared at a Training Centre for Technical Instruction (a United Nations' Special Fund project), giving a three-year course after two years of secondary education.

Teachers for the first primary cycle are given one-year courses at two training centres: the basic qualification is the completion of the primary-

TABLE 1. Distribution of students in technical schools by subject, 1960/61

Subject	Vientiane	Savannakhet	Total
Electricity	26	19	45
Carpentry	16	18	34
Mechanical engineering	43	18	61
Automobile engineering	7	—	7
Construction	22	7	29
Commercial	71	—	71
TOTAL	185	62	247

school course. For the second cycle, the Pedagogical High School at Vientiane provides a four-year course for students who have completed the primary course. In 1963/64 there were 268 students training to teach in the first cycle, and 1,259 in the four-year second-cycle course.

The Agricultural Administration gives a two-year post-primary course in irrigation farming, and drawing, music, dancing and handicrafts are taught through the Fine Arts Administration.

In addition to these levels and types of public and private education, a considerable programme is operated by the Buddhist community which maintains: (a) 70 Pali primary schools with 2,000 novice-pupils; (b) four Pali secondary schools teaching the first cycle of secondary education to 800 pupils; and (c) the Vientiane Institute for Buddhist Studies, which gives a three-year course following the completion of the first cycle of secondary education to intending teachers for Buddhist secondary schools. The enrolment in 1964/65 was 150.

The total enrolment in post-primary education in 1964/65, as reported by the Lao Ministry of Education to the Bangkok meeting of Asian Ministers of Education was as shown in Table 2.

HIGHER EDUCATION

Education at the third level has yet to develop: its recruitment is mainly from successful candidates in the examination at the conclusion of the first cycle of secondary education, the B.E.P.C.; it is hoped to raise the level of recruitment to students with the second part of the *baccalauréat* by 1970.

The institutions which form the embryonic Université Sisavang Vong are:

The School of Medicine. This offers a three-year training programme for nurses, midwives, medical aides, and those going abroad to complete their training as doctors. The enrolment in 1964/65 was 60.

The Royal Institute of Law and Administration. This national centre for political, administrative and legal studies offers three courses, one to young

TABLE 2. Post-primary enrolment in Laos: public and private, 1964/65

	Public	Private	Total
General secondary schools	3 823	675	4 498
Secondary teacher training	1 200	—	1 200
Technical training	674	223	897
Agricultural training	20	—	20
Fine arts	125	—	125
Buddhist secondary schools	—	957	957
TOTAL	5 842	1 855	7 697

secondary-school students with the *B.E.P.C.* who are training for the administrative service, and two in-service courses for senior- and middle-level civil servants, covering general administration, the judical system, foreign affairs and finance and economics. There were altogether 69 students in 1964/65.

The Secondary Teachers' Division of the Vientiane High School with 133 students.

As the future university develops it is proposed to add a school of agriculture, a national library, a national museum, and, for the students, a '*cité universitaire*'. At the moment, Laos has to depend upon the education abroad of its *baccalauréat* students to produce candidates for high-level posts: figures are difficult to obtain; in 1956/57 there were 146 students training at the third level overseas, of whom 75 were in France, 29 in Cambodia and 27 in Thailand. In 1958/59 the number had fallen to 116—no students were in Thailand or Cambodia, 76 were in France, and the earlier number of 4 in the United States had increased to 18.

Finally, in the field of higher education, the ministry, in its Bangkok paper,[1] draws attention to the Institute of Buddhist Studies: this is developing as a centre for the diffusion of the principles of the Buddhist way of life, and the ministry proposes to grant its diplomas equivalence with the awards of public institutions at the same level. It must therefore be regarded as an embryonic Buddhist university.

It seems appropriate to conclude this very brief sketch with a translation[2] of the conclusion of the ministry's report to the Bangkok meeting which seems to epitomize the values of this sensitive, modest and courageous people:

'As may be gathered from the evidence of progress accomplished in education between 1962 and 1965, Laos is advancing step by step, modestly, but resolutely, with the implementation of the plan that has been devised for the improvement of the quality, and the expansion, of education. Laos, before expanding primary education, or at least simultaneously with this, has seen that it must, patiently but firmly, reform its teaching to build in all sincerity a system which will no longer create a privileged class remote from the daily lives of the people.... We wish to create a system of education and teaching which will allow our people to adapt themselves gradually to the modern world without losing their true personality and character, the basic source of their well-being.

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[1] Paper submitted to the Conference of Ministers of Education and Ministers responsible for Economic Planning of Member States in Asia (Bangkok, 22-29 November 1965).

[2] This bald editorial translation does little justice to the original French phrasing: 'Comme on le voit par ces quelques indications sur les progrès accomplis dans le domaine de l'éducation de 1962 à 1965, le Laos avance à petits pas, modestes et modérés, mais fermes et constants dans la réalisation du programme qu'ils ont tracé pour l'amélioration, puis pour la généralisation de l'éducation et de l'instruction. Le Laos, avant de généraliser son enseignement primaire, ou, en tout cas, parallèlement à sa généralisation, a été amené à réformer avec une patiente fermeté, son système d'instruction, et à édifier avec foi un système d'éducation que tend à n'être plus un privilège qui isole et éloigne du peuple ... Nous désirons réaliser un système d'éducation et d'instruction qui ait le mérite de permettre à notre peuple de s'adapter progressivement au monde moderne, sans perdre sa personnalité et son caractère actuels, qui lui assurent son bonheur. Nous désirons enfin, ardemment, répandre et généraliser l'instruction mais en évitant que finalement elle ne compromette ou ne détruise pas les valeurs spirituelles et morales de notre civilisation bouddhique qui nous sont si chères.'

'Above all, we most earnestly desire to develop and expand our system, but at the same time to ensure that such development neither compromises with nor destroys the moral and spiritual values of the Buddhist culture which we hold so dear.'

It is refreshing indeed to conclude one profile in terms of spiritual rather than material values.

Cambodia

BACKGROUND

LAND AND PEOPLE

The seventeen provinces of the Kingdom of Cambodia extend over about 181,000 square kilometres, bordered on the north-east by Laos, on the south by Viet-Nam, on the south-west by the Gulf of Siam and on the west and north by Thailand. Of the total area, about half consists of forests, 10 per cent of stretches of water and 40 per cent of arable land, of which only about one-tenth is actually under cultivation.

The central plain, covering about three-fourths of the country and bordering on the Mekong and the Tonle Sap (great lake), forms a basin ringed by uplands and mountain ranges rising to heights of 3,000 to 5,000 feet: in the south and west by a high plateau including the Elephant Range, whose forested slopes extend down to the Gulf of Siam; in the north by the Dangrek Range, whose sandstone terraces abruptly join the central plain; in the east by the hills of the Moi Plateau, the home of a primitive hill people.

As the turbulent Mekong enters the plains of Cambodia it broadens out with some appearance of placidity; but the prosperity it brings with an accumulation of alluvial soil and a rich supply of fish from connected rivers is not unmixed with the affliction of occasional floods. Together with the richly stocked Tonle Sap, the Mekong provides Cambodia with the greatest freshwater fish resources of South-East Asia.

With a temperature range of 75° to 90° F, while Cambodia has a generally wet climate, it also has a comparatively dry season during the north-east monsoon from November to the end of April, when the highest temperatures are reached. The soil, rich in phosphates but relatively poor in other fertility factors is, like the climate, especially suited to the cultivation of rice, so that peasants often broadcast seed instead of sowing it. Improved methods of cultivation would clearly yield even better results than the good crops grown almost haphazardly in 1964 and 1965.

Of other major crops—including rubber, tobacco, maize, cotton, timber, beans and sugar-palm—rubber and cotton production have made the greatest advances in recent years. In 1964, nearly one-third of the total planted rubber area consisted of new plantations established in the last seven years, and yields achieved were among the highest in the world. Cotton was for the first time exported in sizeable quantity in 1962: with further development and careful price negotiations it could become an important export item. In addition, tea is being introduced as a new crop, with two new stations added in 1965 to the original one.

The population, estimated at about 5,740,000—on the basis of preliminary returns of the 1962 Census—of which an overwhelming majority (about 90 per cent) lives in rural areas, is comparatively sparsely distributed throughout the country. But, while the over-all population density is about 32 per square kilometre, there are, as elsewhere in Asia, fairly wide variations from this average, ranging from a high point of 94 in central and southern areas to a minimum of 5 in the north-east. Annual growth rates in recent years have been variously estimated as lying between a minimum of 2 and a maximum of 2.9 per cent.

The chief towns with their populations are: Phnom-Penh, the capital, located at the junction of the Mekong and Tonle Sap, 403,000; Battambang, 25,000; Kompong Chhnang, 20,000; and Kompong Cham, 15,000.

Ethnically, well over 80 per cent of the population is Khmer, speaking Khmer or one of the mutually intelligible Khmer dialects. But an estimated 500,000 Vietnamese and 300,000 Chinese inhabiting the country play a major socio-economic role as shopkeepers and money-lenders in rural areas and dominating the commercial life of the towns. Other minority groups are the Cham-Malays, mostly Muslim; the Jarai and Rhade; Thai/Lao, largely concentrated in the north-east; and the primitive tribes in the hills.

Since Khmer is so widely understood by native speakers of other languages, Cambodia is fortunate in not having a problem in the choice of a national language; but with French as the second official language and a basic medium of instruction at higher levels of education language difficulties do arise in the educational system.

Of about 64 per cent of the total population that is economically active, 82 per cent are engaged in agriculture, 4 per cent in manufacturing and construction, and 14 per cent in commerce, transport and services. Women form slightly less than 50 per cent of the total population, of which 44 per cent is less than 15 years old.

THE SOCIO-ECONOMIC SITUATION

Cambodia,[1] first referred to as Fu-Nan by the Chinese, was according to legend founded by King Kaudinya from India in the first century A.D.; and according to Chinese reports, by the end of the fifth century Fu-Nan was at the height of its power, exercising suzerainty over Chen-La toward the north, and with completely Indianized customs, incorporating elements of both Buddhism and Hinduism, the legal code of Manu and an Indic script. Between the sixth and eighth centuries both Chinese and Javanese influences made their impact felt, but the country was for the most part divided into conflicting principalities. With the beginning of the ninth century, the Khmer dynasty was established under Jayavarman II, and there began the flowering of the great Angkor kingdom and civilization, producing some of the most magnificent temples and sculpture in all Asia, with both Hindu and Buddhist themes. Toward the end of the twelfth century, the greatest king of the dynasty, Jayavarman VII, ruled from the Annam chain of mountains to the Gulf of Siam, and in his reign the arts flourished, libraries and schools were established in great number, and 100 hospitals were set up.[2] His reign also witnessed a short renaissance of Mahayana Buddhism, but after his death the empire began to fall apart and the country became subject to repeated incursions from Thailand. With the second conquest of Angkor, toward the end of 1430, the great Khmer era came to an end; and, under Thai influence, Theravada Buddhism became the established religion of the country. Throughout this period of mixed influences, the common man not only recognized, but venerated the king as both monarch and spiritual head, ruling by divine right. In the rural areas, the social life centred round the *wats*, which also functioned as centres of education.

Between the fifteenth and nineteenth century, Thailand and Annam struggled for control of Cambodia; and in 1846 Cambodia sought aid from France in a struggle to maintain its identity. France subsequently proclaimed Cambodia a 'protectorate' in 1864, and it became part of the Indo-Chinese Union in 1887, still ruled through the authority of the Cambodian kings, of whom Norodom Sihanouk, the present head of the Cambodian State, ascended the throne in 1941.

During the Second World War, the Japanese did not formally occupy Cambodia, but in March 1945, engineered a coup against the French, when Sihanouk, on the advice of a nationalist rebel leader (who was later to offer him considerable opposition), declared the independence of his country. In January 1946, on their return after the defeat of Japan, the French made certain concessions to Cambodian national demands, which now became an autonomous kingdom within the French Union. But the struggle continued; and in February 1954 there was a quiet transfer of nearly full power, followed by complete independence on 29 December 1954, Cambodia retaining membership of the French Union.

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[1] It has been plausibly suggested that this designation is derived from the first name of the legendary founder of the Chen-La dynasty, Kambuja.

[2] At the opening of the Royal Medical College Hospital in 1956 this great monarch was remembered, and from the past his words were re-echoed: 'the pain of their subjects, and not their own pain, is the sadness of kings'.

The leaders of the country had also been striving to establish a popular representative government. A constituent assembly was elected in 1946, a constitution promulgated in May 1947, and with lower and upper houses of the Cambodian legislature convened in January and February 1948, parliamentary government began. Subsequently, however, it underwent a series of vicissitudes owing to internal differences. The first fully representative elections of December 1947 led to a parliamentary membership that proved unworkable: Sihanouk first dissolved it in September 1949 and again in June 1952, after new elections in 1951, through non-constitutional royal mandates. In February 1955, after full independence, he appealed to a national referendum, in the Gaullist manner, for clear approval from the people, and won an overwhelming victory (925,000 out of 927,000 votes cast). He subsequently formed the most efficient political machine Cambodia had ever known, the People's Socialist Community (Sang Kum Reastr Niyum, SRN); and to gain the support of the younger groups, who were becoming increasingly critical of the government for its conservative ways, established the auxiliary Socialist Youth of the Khmer Kingdom.

At this point, the country also began to be caught up in the currents of the Cold War. Sihanouk decided to abdicate as king, and acting as supreme political leader of the country, insisted on neutrality and non-alignment as the only basis for concentrating on economic well-being and self-sufficiency.

The economy of the country had suffered greatly as a result of the Indo-Chinese war—with a wrecked communications and transport system, crop failures and border conflicts with Viet-Nam—when the first Two-Year Plan was drawn up in 1956 (later extended to 1958). Rightly it aimed at social as well as economic development, but available finances, including aid from France and the United States, were far from sufficient to implement it; and Sihanouk invited socialist help by declaring that Cambodia would accept aid from anywhere, provided no political strings were attached. Both the U.S.S.R. and China responded; but within the country growing opposition to neutrality led to political instability, to conflicts between aristocratic families controlling the government (Sihanouk himself resigned on more than one occasion), and to a deterioration of relations with an old antagonist, neighbouring Thailand, and with South Viet-Nam, particularly in the form of increased border clashes, which in the case of Thailand finally led to a rupture of diplomatic relations.

Basically, conflicts within the country have been controlled partly because Sihanouk still carries the aura of divine leadership and partly because there is still general acceptance of the Buddhist principle that individual improvement should be achieved within the existing social order rather than through a change of that order—differences between leaders being either personal or on how and when improvements should be introduced. However, the impact of the French intellectual ferment has begun to be felt increasingly as education based on the French model has rapidly developed since independence.

In 1959, the Ministry of Planning drew up a reasonably modest Five-Year Plan, 1960-64, to develop agriculture as a first goal, while giving special attention to securing a sound social and material infrastructure, and making some advance toward industrialization. But, without adequate financial resources at home and aid from abroad, even this proved to be far too ambitious. At the end of 1962, the Plan State Secretary, Son Phuoc Tho, reported that: '... it is now impossible to compare what was scheduled in the initial plan with what was finally undertaken. The official document devoted to the plan consists essentially of a wide programme established in 1960 for the next five years. This programme appears today to be very much too rigid. It should have been necessary not to plan for more than one year in advance, with the exception of big-scale projects.'[1] Although in more recent years the economy of the country has shown substantial improvements, particularly owing to an increase of agricultural outputs, the current attitude seems to be to proceed on the basis of short-term planning: at least by 1966 no new over-all development plans have been announced.[2]

Undoubtedly many of the difficulties encountered have been not only financial but also due to the shortage of qualified professional and technical manpower among the Khmers—in so far as the Chinese and Vietnamese compensate for this lack, the usual friction is engendered and, in any case, not being Khmer, they are excluded from the highly bureaucratized structure of government administration. However, there is considerable emphasis now being laid on a rapid development of higher and vocational education; and to the extent that these efforts are channelled in accordance with national needs it should become possible to deal with development problems more effectively.

In 1964/65 the general picture of the economic situation showed both a move to the left with the completion of the nationalization of foreign trade, banking and insurance in 1964, and, after some months of adaptation and experience, a recovery from a resultant slowing down of the economy. Close co-operation was developed between public and private enterprises, especially private import firms (mostly French) and small private industrial ventures. The budget deficit continued to be a problem; but the balance of trade benefited from good crops and exports in both 1964 and 1965. Foreign aid, especially for the development of industry, power and transport, was on the

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1. *Far Eastern Economic Review 1963 Yearbook*, p. 69 (Hong Kong, December 1962).
2. However, also see pp. 204 and 206 on the Second Five-Year Plan, 1966-70, for education, which is intended to be integrated in an over-all plan.

increase from a variety of major and divided sources (although Cambodia abrogated American aid in 1963).

A real beginning toward significant industrialization is being made, not only with the establishment or development of such major government enterprises as cotton and paper mills, cement and plywood factories, a palm-sugar refinery, jute and tyre factories, tractor and car assembly, an oil refinery, a glass plant, but also by considerably improved transportation facilities —particularly on the Phnom Phen-Sihanoukville railway and on the expansion of the new Sihanoukville seaport. Surveys and plans for the development of hydroelectric installations in 1965 aimed at providing for a power capacity of 68,000 kW and the irrigation of 90,000 hectares. On the other hand, although some oil prospecting has been begun, an adequate survey of Cambodia's mineral resources has yet to be carried out. At present, while it is generally recognized that there are deposits of iron ore and limestone, and traces of such minerals as copper, manganese and gold have been found in preliminary studies, no further steps have been taken to investigate these potentials.[1]

If this move towards development is to be maintained and indeed accelerated, and the very considerable dormant resources in agriculture (nearly nine-tenths of arable land is lying idle), are to be exploited, the provision of adequately trained manpower can clearly be seen as a major target of the educational system.

THE EDUCATIONAL SYSTEM

In basic terms, Cambodia has an educational system comprising six years of primary education, seven years of secondary—including four years for the first and three for the second cycle—and four to seven years for a first degree. However, side by side with this system, there is a stream of Buddhist education administered and staffed by monks. Admission to this requires that the pupil should already have acquired some informal instruction more or less equivalent to the first three grades of primary school, and though some of the monastery schools have no more than one or two grades, the full primary course is normally completed by a three-year programme.[2] This is followed by a four-year secondary course, after which pupils may seek admission to higher studies, which since 1963 have three progressive stages of three, four and three years, the first stage of which is in some ways the equivalent of the upper secondary cycle in the State schools.

No public terminal examination is held at the end of primary education though each school, after a final examination, awards successful candidates

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1. At present the only mining activity centres on the production of rubies and semi-precious stones.
2. These and the schools offering them are not to be confused with re-modelled pagoda schools which are integrated into the Ministry of Education primary education system. See p. 187.

a certificate (*Certificat d'études primaires complémentaires*). However, admission to public general secondary schools involves passing a strict entrance examination, in which no more than 30 per cent of the candidates succeed (11,520 out of 44,084 in 1963). In the academic section, the first four-year cycle of secondary education leads to the *Diplôme d'études secondaires du premier cycle* (DESPC); the second of three years consists of two parts: the first requiring two years for the *baccalauréat*, part I, and the second an additional year for the full *baccalauréat*. While in academic secondary education the student entering the second cycle must specialize in one of three divisions—experimental sciences, mathematics or philosophy[1]—there are also a few vocational/technical schools offering courses at corresponding lower and upper levels, to which admission is usually gained through competitive entrance examinations, and which in some cases, at the upper level, require the DESPC as a minimum qualification. The full *baccalauréat* is a minimum qualification for admission to higher education.

In the Buddhist system, admissions to secondary and higher levels are very restricted and therefore highly selective, because there is at present only one Buddhist high school (*lycée*) offering admission to 180 students, and the Buddhist University admits no more than 40 students each year.

In addition to the Ministry of National Education, several other ministries also play an educational or training role in the organization and supervision of various specialized sectors: the Ministry of Religious Affairs is responsible for Buddhist education; the Prime Minister's Office for the Royal School of Administration; the Ministry of Agriculture for agricultural education and training; the Ministry of Public Health for all para-medical training and, jointly with the Education Ministry, for the Medical Faculty; the Ministry of Social Welfare for two centres providing manual vocational education and care for abandoned children; the Ministry of Public Works and Telecommunications for training personnel for public works, mines and shipping; the Ministry of National Security for training police and provincial guards; and the Ministry of Defence for military academies.

The Ministry of Education itself has four major divisions: the Ministerial Cabinet, the Administrative Directorate, the General Directorate and the National Office for Educational Planning. The first comprises a secretariat and three bureaux dealing with information, external relations and general affairs. The Administrative Directorate has five bureaux for personnel, scholarships and bursaries, construction, accounts and legislation. The General Directorate includes six sub-directorates for public primary, secondary and higher education, vocational/technical education, private education and adult education, together with another six for sports and youth, school health, cultural relations, teacher training, arts and model schools.[1] The Planning Office has five bureaux in charge of general affairs, accounts, statistics, studies and documentation, execution and control.

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[1] Both in 1960/61 and in the following year there were no students in public schools enrolled in this division.

In addition, there are also four[2] consultative councils which may be convened by their chairmen whenever they consider it appropriate to do so: the Higher Council for Education, Councils for Primary, Secondary and for Technical/Vocational Education. While the latter three are concerned with giving advice only in their special field, the first is charged with studying and making recommendations on all desirable reforms in educational programmes and methods.

The Planning Office was established only in October 1962, in accordance with a growing local recognition of the need for it and the recommendations of a Unesco mission.[3] The mission had also suggested the establishment of three advisory organs to assist the office, and these have since been created: a broadly based consultative council, including general as well as specialized membership from both public and private sectors, mainly working to give its advice before the adoption of a plan; a co-ordinating and supervisory committee, with restricted membership, concerned with difficulties and obstacles encountered in the course of executing a plan; twenty provincial/municipal committees which are intended to perform the double function of giving advice for planning from a local/administrative viewpoint and assisting in dealing with difficulties at the local level. For the office itself, the mission recommended that it should cover all stages and sectors of education and be charged with analysing the over-all education situation, in particular determining manpower resources and qualified personnel needs arising at various levels in the course of economic and social development, establishing an order of priority in accordance with government instructions, mobilizing financial and material resources needed for an educational policy integrated within a national economic and social plan, assisting in the supervision of the implementation of the plan, and evaluating the results achieved.

Until recently, the new Planning Office concentrated its efforts on the examination, analysis and collation of Cambodia's school statistics, publishing a number of statistical documents and descriptions of the educational situation as a basis for future planning. But now, according to Cambodia's Progress Report to the Bangkok meeting of Ministers of Education,[4] the

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1. There were 13 of these progressive experimental schools in 1962, with an enrolment of 5,257 pupils and a staff of 179 teachers.
2. Also see below for comment on three advisory bodies recently established to assist the Planning Office.
3. C. L. Vieyra and H. Poulier, *Rapport de Fin de Mission, Mission de Planification de l'Education dans le cadre de la Planification Economique et Sociale du Cambodge, avril-septembre 1962* (Phnom Penh, 1963, mimeo.).
4. Unesco Conference of Ministers of Education and Ministers responsible for Economic Planning of Member States in Asia (convened by Unesco in co-operation with ECAFE), Bangkok, 22-29 November 1965. *Member States Progress Report—Cambodia* (Bangkok, Unesco, Unesco/EDECAS/6c, 1965).

office has assisted the ministries of Education and of Planning to prepare integrated five-year educational plans for 1966-70, which 'can be described as "spring-boards", in as much as they constitute, as it were, preparatory steps permitting easy transition to a higher stage'. In seeking solutions to problems, the report observes that the following sets of measures have received special attention:

'1. A study of all the suggestions emanating from the education conferences and a search for adequate solutions, both quantitative and qualitative, with a view to adapting our present educational system to the needs of our country while ensuring that the planless expansion of the past does not create a threat of unemployment for the semi-intellectuals who have completed secondary school. Our main objective, as reflected in the current educational reforms, is to co-ordinate education with employment possibilities within the framework of general development.

'2. Emphasis on the teaching of the sciences and of technical and prevocational subjects by means of a set of curricula providing for a diversified secondary education covering three sections: classical, scientific or technical, and agricultural, these being optional but meeting the prime condition of rendering secondary education terminal."[1]

However, as long as various important sectors of education—especially much of the vocational, technical and professional—remain dispersed under various ministries, co-ordinated planning and development will remain difficult. Even the comparatively simple matter of over-all public budgeting and expenditure appears confused in the recently available statistics. Thus in tabulating total expenditure on education for comparison with national income and budget for the years 1960 to 1964 (also see Table 12), the report not only omits estimates of private expenditure on education, but also public expenditure on vocational/technical and higher education met by ministries other than the Ministry of Education, which together amount to nearly 63.4 million riels ($1.81 million) in 1964, raising the proportion of the national budget expended on education from less than 17.2 to over 18.2 per cent.

At the regional level, decentralized administration is provided only for primary and fundamental education; all other education remains directly under the central administration. In each of seventeen provinces and three municipalities[2] a primary inspector is responsible for the inspection and control of public and private primary schools, and a director of fundamental education for activities relating to out-of-school education and community development. The first is assisted by one or more deputies in the provincial

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[1] ibid., p. 5.

[2] For two newly established municipalities apparently no specific provision had been made by 1964.

TABLE 1. Public and private school enrolment by level, 1963/64

Level	Public		Private	Total	Private as percentage of total	
	Main-stream	Pagoda schools				
Primary						
1-3	384 795	79 031	21 042	484 868	4.3	3.5
1-6[1]	160 970	—	1 708	162 678	1.1	
Secondary						
General, 7-13	44 813		22 764	67 577	33.7	
Vocational, 7-13[2]	2 252		—	2 252	—	
Teacher training, 11-14[3]	2 862		—	2 862	—	

1. Primary enrolments in Buddhist monasteries are not available for 1963/64 and therefore not included, but they numbered only 10,150 in 1961.
2. Includes enrolments in schools of art, music and drama (369), and technical/vocational schools run by ministries other than the Ministry of Education (1,081), but not teacher training given below. Also 30 students in higher courses in administration and 20 in public works engineering are not included.
3. Includes Buddhist priests (bonzes) training as schoolteachers and inspectors (1,153).

centre and a varying number of sector chiefs in each provincial sub-division.[1] The second is assisted by fundamental education commissioners (*délégués*), in 1962 for 36 of 80 provincial sub-divisions and 7 municipal circles.

Public primary and secondary education are free, and in principle primary education is compulsory from the age of six;[2] but in 1964/65 it was estimated that only 44.6 per cent of the 6-11 age group was enrolled in primary schools: 57.4 per cent of the boys and 31.7 per cent of the girls. Admission to secondary education is limited by a stiff entrance examination, passed in 1963 by no more than 26 per cent of the candidates. According to the 1962 Census data, of the population aged 10 years and over, only 3.8 per cent had completed a primary and 0.7 per cent a secondary education, of which women constituted no more than 0.5 and 0.1 per cent respectively. Literacy was estimated as 37 per cent for the total population aged 10 years and over, with figures of 59.8 per cent for men and only 14.2 per cent for women.[3]

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[1] The stated aim is to have one primary school inspector to 250 teachers and one sector chief to 50 teachers.

[2] It was originally made obligatory for children reaching the age of 8 in a decree of 1906, lowered to the age of 7 in 1934, and in April 1962 a law was passed that compulsory primary education should begin from the age of 6 and apply to all children residing in places possessing a public primary school or situated within a distance of 1,500 to 2,000 metres of such a school. Neither this nor previous laws specified the duration of compulsory primary education.

[3] However, the 1965 *Member States Progress Report* (op. cit., p. 4) indicates a total

TABLE 2. Increases in total[1] enrolment by level, 1953/54 to 1963/64

Level and type (grades)	Enrolments			Indices 1953/54 = 100	
	1953/54	1958/59	1963/64	1958/59	1963/64
Primary (1-6)[2]	313 900	562 900	647 546	179	206
Secondary (7-13):					
General	5 460[3]	23 892	67 577	438	1 238
Vocational/technical[4]	420	880	2 252	210	536
Teacher training[5]	600	1 200	1 709	200	285
Higher education[6] (13-16+)	220	410	1 807	186	821

1. Public and private, but not including monastery school enrolments.
2. Due to incompleteness of data, figures are rounded to nearest 100 for 1953/54 and 1958/59.
3. The URAT report on Cambodia gives a considerably higher figure of 9,950, primarily due to counting 6,100 in the private sector as compared with only 2,046 in the table, based on information from the Cambodian Director-General of Education.
4. Includes enrolments in schools of fine arts, lower levels of the School of Administration, and all levels of the schools of commerce, although the highest of the latter are post-secondary.
5. Includes teacher training up to the grade 14/15 level for those qualifying to teach in the first cycle of secondary education. But enrolments of 1,195 Buddhist priests training to be teachers in special courses are not here included (see Table 1).
6. Includes enrolments in certain secondary courses—e.g., the *capacité* in law, health officer courses, though not lower-level administration courses—since available statistics do not permit a complete or useful separation. Data for 1963/64, however, show that as much as 28 per cent of the total enrolment belonged to this category.

In 1963/64 no more than 3.5 per cent of the total primary enrolment (excluding that in monasteries) was in private schools; but at the secondary level, the private proportion rose steeply to 33.7 per cent (Table 1). Vocational education and teacher training, however, was apparently confined to State schools. It is also to be noted that the dominant position of the mainstream of public primary education is a comparatively recent phenomenon: in 1950, of the total primary enrolment, 43 per cent was in pagoda schools and 9 per cent in private schools. In the period concerned, the fourfold increase in primary enrolments was mainly the result of expanding the mainstream of public schooling.

Table 2, indicating increases in enrolments in various levels and types of education, shows that the effort to separate upper secondary from higher

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of only 20 per cent of illiteracy, of which it was aimed to teach all but a hard core of 2 per cent to read and write within two years. 'All able-bodied persons, whether at school or already educated, are required to co-operate most actively in support of this project. The literacy courses [in 1965] have an enrolment of 850,000, including 421,000 women.'

education has been only partially successful. Institutions, teaching facilities, budgets and statistics on them have developed in such a way that it is not always possible to maintain the distinction. But since such error as there is primarily lies in underestimates for vocational secondary enrolments and a corresponding exaggeration for higher education, the table does serve to emphasize the very large and rapid growth of secondary education. Furthermore, while higher education has not grown as rapidly over the full ten-year period, during 1958/59 and 1963/64 it has increased its enrolments at a significantly faster pace.[1] Recent educational growth thus presents a pattern of some slowing down in the expansion of primary education, while greater attention has been given to developing secondary education, followed by an acceleration in the promotion of higher education. However, the progress of teacher training has lagged far behind secondary development, and considerable reliance has still to be placed on foreign as well as foreign-trained teachers, not only for the upper but also for the lower secondary levels.

With the exception of Buddhist and some private schools, Khmer constitutes the main medium of instruction only at the primary level, with French, introduced as a second language in grade 4, taking over as the main medium of instruction from the very beginnings of secondary education. This practice acts as a restrictive influence on entry to and success in secondary and higher education, since only a few students have proper opportunities to develop sufficient command over the French language in the upper three years of primary school. In recent times, controversy on the subject of the medium of instruction has grown, and there are signs that in future the use of Khmer is likely to be extended,[2] though at present the Head of State favours the retention of French to safeguard standards, particularly because of the continuing heavy dependence on foreign secondary-school teachers.

At present, Buddhist schools use Khmer and Pali as media of instruction through all levels of education, and a number of private schools also employ Khmer or a minority language (mainly Mandarin) as a medium of instruction at the secondary level. While this may have an indirect influence on future language policy, it leaves the pupils of such schools handicapped in sitting for the secondary public terminal examinations (grades 10, 11 and 12), which are held in French.

Primary education

Rough estimates made of the productivity of primary education in the URAT report on Cambodia indicate that both wastage and repeater rates are very high. For both 1954 and 1955 cohorts, it was found that no more than 35 per cent completed the primary course. Various surveys indicate that the average repeater rate for each grade of primary education ranges around 20 per cent. This, at least in part, further explains the low ratio of those over 10 years of age who have had a full primary education (p. 186). However, the apparently high drop-out rate must be at least partly the result of a situation in which many areas of the country have primary schools with only the first three elementary grades: in 1962, out of a total of 2,083 public primary schools, about 44 per cent belonged to this category.

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[1] Since the possible source of error is more or less constant the growth rate is not substantially affected by it.

[2] See: Richard Noss, 'Language Policy and Higher Education in South-East Asia (Vol. III, Part 2, of this study).

The proportion of girls in the total primary enrolment, though still small at 35 per cent in 1965, has increased steadily from a mere 10 per cent in 1950. Girls tend to enter school at a later age than boys and leave sooner.

In reviewing the developing situation over 1962-65 and basing itself entirely on gross enrolment figures, the Cambodian *Member States Progress Report* to the 1965 Bangkok ministerial meeting[1] considered that 'such a mighty revival took place in sending children to school that the Education Department has been faced with a serious shortage of teachers during the present period . . .'. In terms of quoted figures, the pupil/teacher ratio has, however, risen only slightly from 45 in 1962 to 48 in 1965, whereas the stated target is to have one teacher to 45 pupils. Possibly a number of the teachers employed are considered insufficiently qualified.

Secondary education

General. Secondary general education, from the academic point of view, is provided by two main types of institutions: *lycées,* which offer the full secondary course,[2] and *collèges,* which have provision only for the first cycle of secondary education. At present the latter still far outnumber the former, and in 1961/62 there were only 7 *lycées* as against 37 *collèges.* But it is planned ultimately to upgrade all the latter to full secondary-school status with both cycles.

As Table 7 shows, a major share of the enrolments is concentrated at the first level. This is partly explicable in terms of the noted rapid expansion of secondary education; but as the examination results given in Table 3 indicate, the drop-out and repeater rate must also have contributed significantly. The table also suggests that, together with a very rapid increase in candidates for the secondary final examinations, the percentage passing has dropped substantially.[3]

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[1] op. cit., p. 3.

[2] The Lycée Khméro-Anglais is an exception in that at present it comprises only primary grades 4-6 and is in the process of being upgraded.

[3] There is some duplication of candidates since each year there are two examination sessions, and most candidates at the second are repeaters, but both these factors are common to the years in question.

TABLE 3. Candidates and passes in terminal secondary general examinations, 1960/61 and 1962/63

Certificate	1960/61			1962/63		
	Sat	Passed	Percentage	Sat	Passed	Percentage
Lower secondary (grade 10)	4 031	1 253	31.1	16 888	3 458	20.5
Baccalauréat I (grade 12)	392	217	55.4	2 999	550	18.3
Baccalauréat II (grade 13)	213	105	49.3	694	177	25.5

Clearly conscious of the cost implications of such wastage, the secondary education laws passed in 1959/60 lay down definite criteria for the employment of qualified teaching staff and for school inspection as well as specific conditions of admission to various grades with the object of restricting repetition. According to Article 39, admission to secondary education is limited to candidates between the ages of 10 and 16; the *baccalauréat II* must be taken between the ages of 17 and 22, with specific age limits for each intervening grade; a grade normally may be repeated only once, and scholarship holders repeating a grade are deprived of their scholarship. Even so, continued language and language-teaching difficulties, coupled with further rapid expansion in enrolments, are likely to retard such progress.

The problem is further emphasized by the fact that, despite a high proportion of foreign teachers—mainly French, and nearly one-fourth of the total teaching force in 1961/62—there has in recent years been an increase in the percentage of under-qualified Cambodian teachers from 55 to 65 per cent,

TABLE 4. Number and percentages of public secondary Cambodian teaching staff by level of qualification[1]

Level of qualification	1956		1963	
	Number	Percentage	Number	Percentage
Holders of a university degree	46	21	35	3
Holders of other diplomas	52	24	382	32
Primary teachers teaching at secondary schools	118	55	781	65
TOTAL	216	100	1 198	100

1. Breakdowns for foreign staff not included.

TABLE 5. Vocational/technical education: types, levels, enrolments and staff, 1963/64[1]

Type	Number	General[2] levels by grades	Enrolments	Staff							
				Cambodian			Foreign			Total	
				Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time
Fine arts, music and drama	3	7-10	369	39	2	41	11	2	13	50	4
Technical	5	7-10 11-13+ 14-17	780[3]	69	17	86	17	4	21	86	21
Assistant chemists	1	11-13	39	—	10	10	—	4	4	—	14
Commerce	1	9-10 11-12 13/14-15/16	240[4]	—	33	33	—	10	10	—	43
Administration	1	13-14 14-16	120[5]	—	10	10	—	30	30	—	40
Health assistants and midwives	1	11-13[6]	325	30	39	69	—	—	—	30	39
Agriculture and forestry	3	11-12 11-13	239	—	30	30	2	3	5	2	33
Others	3	7+[7]	170	. . .	. . .	. . .	. . .	. . .	. . .	—25+—	
TOTAL	18		2 282	138	141	279	30	53	83	168	194
										387	

. . . Data not available.

1. As teacher-training data are given separately in Table 6, they are here excluded. Enrolments extending beyond grade 13 are, however, retained for comparison with the staff provision which is not separated by level. Data on military and police academies and on schools of aeronautics and civil aviation are not included.
2. The grade levels are based on minimum educational qualification for admission to the course and minimum period of required study and training. However, normally there is not only a highly selective entrance examination, but in several cases also a requirement stipulating some practical experience or a lower age limit.
3. Includes 20 engineering students in grades 14-17 and an unknown number in grade 14, recently added to provide training toward a full technical *baccalauréat II*. On the other hand, it also includes a number of apprentices in three-year training courses to which admission is secured through a competitive examination without the stipulation of any minimum educational qualifications or age limits.
4. Includes over 80 students in grades 13/14-15/16, admission being open to full *baccalauréats* but by competitive entrance examination also to those who have only taken the first *baccalauréat*.
5. Includes an enrolment of 30 students in grades 14-16.
6. There is in addition an elementary course for auxiliary nurses, recruiting pupils from grade 6.
7. Varying durations beyond grade 6 for which details are not available.

as shown by Table 4. On the other hand, the crude pupil/teacher ratio for both private and public schools has, between 1962 and 1965, averaged less than 34:1, which, if not fully adequate, is in line with the proposed target of 35:1 in Cambodia's progress report to the 1965 Unesco conference of Ministers of Education.[1]

As is to be expected, the proportion of girl pupils in secondary education is considerably lower than in primary, but it has increased from an average of 10 per cent during 1953-56 to about 20 per cent in 1963.

Vocational and technical. The development of vocational/technical education in Cambodia is of quite recent origin and, as seen (Table 2), has expanded with particular rapidity between 1958/59 and 1963/64, although it still forms a comparatively small part of secondary education as a whole. In reviewing the available details on types, levels, enrolments and staffing given in Table 5, for 1963/64, it must be remembered that certain courses in the higher institutions, particularly in law and medicine, are at a secondary level, while at the same time certain courses in the predominantly secondary institutions reach a post-secondary level.

Apart from the relatively meagre provision for the important field of agriculture, the general balance of enrolments between different subject areas appears to be fairly satisfactory when seen as part of a recently developed base. The considerable emphasis on the fine arts and music, with a full-time staff/student ratio of 1:7.4, is culturally refreshing, if economically dubious. What will be needed to prevent imbalance in the future is to organize adequate co-ordination, not only at the planning but also at the executive level, between the large number of different authorities responsible for various types of vocational education (see pp. 183-5) and to rationalize the proliferation of different types and levels of diplomas and their varying specific admission requirements. At it is, the absence of breakdowns of enrolments by levels and the lack of details on qualifications awarded make it impossible to hazard generalizations on the efficiency or recent progress of the system's operation.

However, data available for the École Nationale des Arts et Métiers for 1961/62 suggest that its productivity may be far from satisfactory. Although the entrance examination is so strict that less than one-tenth of the candidates were admitted in 1961/62, in the same year no more than 50 per cent of the candidates appearing for the first secondary-cycle diploma (industrial section, grade 10) examination passed (72 out of 149), and of those sitting for the first *baccalauréat* in the technical section (grade 13) only about 20 per cent passed (6 out of 29). This situation presents a striking contrast to results achieved by most comparable secondary vocational institutions in other countries of the region, where pass rates tend to be fairly high: it is clearly a matter of high priority to determine the causes of such costly wastage and take measures to eliminate them.

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[1] op. cit., p. 3.

The staff/student ratio certainly does not appear to be responsible in the technical field: even in the case of full-time staff, in 1963/64 this ratio stood as high as 1:9. It is, however, interesting to note that, apart from the fact that a substantial proportion of the staff is foreign, the percentage of part-time staff is very large in certain fields. Indeed, excepting two full-timers in agriculture, all staff in the following subject areas are part-time: commerce, agriculture, administration, and, at the assistant level, chemistry.

Teacher training. There are three categories of teachers for whom secondary teacher training is available: complementary-grade teachers (grades 4-6);[1] lower secondary-school teachers (grades 7-10); and Khmer-system teachers trained either in monasteries or in *écoles d'application provinciales* for Buddhist priests (bonzes) wishing to teach in primary schools.[2]

The Kompong Kantout Teacher-Training Centre and the National Pedagogical Institute (primary section) both provide courses for the first category. Until recently the entrance requirements and the length of courses differed at these institutions,[3] now both offer a two-year training, with the lower secondary diploma (grade 10) as a minimum admission requirement and an entrance examination consisting of intelligence and aptitude tests.

Only the institute (secondary section) trains lower secondary-school teachers in the general (non-Buddhist) stream of education. The course extends over one to two years, and candidates are selected, either: (a) from among holders of the full *baccalauréat* who take a one-year course; or (b) by competitive examinations for holders of the first *baccalauréat* and those who have had a minimum of three years of secondary teaching experience, both of whom are required to complete a two-year course. Options provided include Khmer, French, history, geography, natural sciences, and physics/chemistry. The institute, which also serves as a pedagogical research and documentation centre, has since 1960 been incorporated in the Royal Khmer University, and it is proposed to develop it further to provide higher training courses for teachers at the upper secondary level.

Courses for both primary and lower-secondary teachers are now designed on the basis of allocating the following percentage quotas of available time to series of correlated subjects: '(1) cultural and social education, 50 per

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1. Most of the grade 1-3 teachers are selected by competition from among candidates who have completed the first four years of secondary education (grades 7-10).
2. There is also an Ecole Supérieure des Bonzes which trains bonzes as school inspectors.
3. The first institution had a three-year course requiring candidates sitting for its entrance examination at least to have completed primary education (most who succeeded had had more than two or three years of secondary school). The second selected its students from among those who held a lower secondary diploma and provided a one-year course.

cent; (2) scientific and practical education, 30 per cent; (3) vocational education, 20 per cent."[1]

For Buddhist teacher training, data are available only for the *écoles d'application provinciales* and the *École Supérieure d'Application.* The first, of which there were 27 in 1962, prepares Buddhist priests as teachers for improved primary pagoda schools (grades 1-3) in one-year courses. The second trains them in two-year courses as inspectors.

In addition to these institutions, there is also a *Centre de Formation d'Educateurs de Base,* Tonlé Bati, which offers two-year courses for students selected by competitive examinations from among holders of the lower secondary diploma (grade 10).[2] The two-year curriculum includes a theoretical course of one year and another year of training in the field.

Enrolments, staff and outputs in the various forms of teacher training for 1963/64[3] are given in Table 6: the high pass percentages contrast strikingly with the low percentages for the *École Nationale des Arts et Métiers.*

While girls form only about one-fifth of the total teacher-training enrolment and constitute some 36 per cent of the non-Buddhist primary teacher-training enrolment, they represent more than 50 per cent of the enrolment in the *Centre de Préparation Pédagogique* as against only 18 per cent of that in the primary section of the *Institut National Pédagogique.*

Although more than 80 per cent of the total teaching staff is full-time, part-time staff plays a significant role in the institute's secondary as well as primary section. In terms of pupil/teacher ratios, the centre is surprisingly better equipped than the institute's primary section: the first has a full-time staff/pupil ratio of 1:15 as against the second's 1:36 (even including part-time staff at full value, no more than 1:19). On the other hand, the secondary section of the institute seems quite adequately staffed with 17 part-time teachers to support the full-time staff/pupil ratio of 1 : 14. The biggest contrast appears between the staff provision for Buddhist teacher training and the training of instructors in fundamental education: the first has a full-time staff/student ratio of 1 : 38 and the second of 1 : 2.4: 27 full-time teachers for a mere 68 trainees.[4]

In addition, it is also to be noted that, for the institute and centre, about 26 per cent of the total teaching force was foreign, and for the secondary section of the institute alone nearly 45 per cent. In terms of full-time staff at this level, there were 13 foreign teachers as against only 8 Cambodians. As there is a limit to the availability of foreign staff, and the cost for this is in any case high, the present situation stresses the need to develop higher levels of teacher training as well as more teacher training abroad for Cambodians.

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1. *Member States Progress Report—Cambodia 1965,* op. cit., p. 9.
2. Before 1962/63, students who had pursued four years of secondary school but had not taken the diploma could also appear for the entrance examination.
3. Data on the training of bonze school inspectors not included.
4. It may be hoped, if not conjectured, that these are also actively engaged in field practice and/or research.

TABLE 6. Teacher-training enrolments, staff and outputs, with percentage of passes

Institution	Grade levels	Enrolments			Staff		Graduate outputs		
		Male	Female	Total	Full-time	Part-time	Candidates	Passes	Pass percentage
Institut National Pédagogique (primary section)	11-12	460	83	543	15	13	586	559	95.4
Centre de Préparation Pédagogique de Kompong Kantout	11-12	400	403	803	53	2			
Institut National Pédagogique (secondary section)	14 13-14	242	53	295	21	17	217	215	99.1
Ecoles d'applications provinciales	—[1]	49	19	68	27	—	. . .	. . .	
Centre de Formation des Educateurs et Educatrices de Base	11-12	1 153	—	1 153	30	—	. . .	. . .	
TOTAL		2 304	558	2 862	146	32	803	774	96.4

. . . Data not available.

1. Here the concept of grade level is not applicable.

TABLE 7. General education enrolments by grades, 1962/63 (public only)[1]

Grades	Male	Female	Total
Primary			
1	111 590	68 954	180 544
2	72 012	40 799	112 811
3	57 888	29 297	87 185
Sub-total 1-3	241 490	139 050	380 540
Primary			
4	45 528	19 062	64 590
5	35 607	12 655	48 262
6	36 727	10 309	47 036
Sub-total 4-6	117 862	42 026	159 888
Secondary			
7	11 500	3 040	14 540
8	9 400	2 430	11 830
9	7 000	1 750	8 750
10	5 000	1 320	6 320
Sub-total 7-10	32 900	8 540	41 440
Secondary			
11	2 100	230	2 330
12	1 200	140	1 340
13	400	40	440
Sub-total 11-13	3 700	410	4 110
Higher education 14-17+	1 161	151	1 312

1. Source for primary and secondary figures: URAT report on Cambodia, which—due to incompleteness of data—rounded secondary figures by hundreds for boys and tens for girls. University figures are taken from *Bulletin de statistiques scolaires, rentrée 1963-64*, Département de l'Education Nationale et des Beaux-Arts, Office National de Planification de l'Education; but here exclude secondary-level enrolments in medicine, law and teacher training, while including higher-level enrolments in administration and civil engineering.

THE EDUCATIONAL PYRAMID

Data on distribution of enrolments by grades are available only for general education in public institutions (excluding pagoda schools), and in Table 7 these are given for 1962/63.

As noted before, there is a sharp tapering of enrolments between all main levels of primary and secondary education, with a very large proportion of total enrolments concentrated in the first three grades. There is also a progressive decline in the proportions of female enrolments from one stage to the next. Furthermore, as the upper general secondary enrolments already constitute well over three times those in higher education, if the former continues to expand anywhere near as fast as in the recent past, pressures for access to higher education will certainly grow rapidly as well.

HIGHER EDUCATION

STRUCTURE, ORGANIZATION AND ADMINISTRATION

Apart from higher education once provided by Buddhist monasteries, modern higher education is a fairly recent development in Cambodia, and currently all its institutions are situated in Phnom-Penh. Although the beginnings of present institutions of higher education date back to 1946, when a school for health officers was opened with four-year courses following on a minimum of ten years' schooling, most of them began to operate at a higher level only in the middle and late fifties. The National Institute of Juridical, Political and Economic Studies, established in 1949, is the only exception. The Royal School of Medicine was decreed in 1953, but did not open until 1956, following a 1954 agreement for affiliation with the University of Paris Faculty of Medicine, and began teaching for the sixth year in 1961/62. The Royal School of Administration was founded in 1956; the National Pedagogical School, based on a normal school, and the National School of Commerce both in 1958; Faculties of Letters and of Science and Technology in 1959, and the Preah Sihanouk Raj Buddhist University in 1959, following decrees issued in 1954/55.

The Royal Khmer University was inaugurated in 1960, in accordance with a 1959 decree, incorporating the following institutions: Faculty of Law and Economics, based on the former institute; the Medical School, as a faculty of medicine, pharmacy and pre-medical sciences; Faculties of Letters and Humanities and of Science and Technology; the National Pedagogical Institute. These are scattered all over the city, for as yet there is no central campus.

In addition, a National School of Public Works, Construction and Mines provides post-secondary courses in engineering, while in 1963/64 a Khmer-Soviet Institute of Technology[1] was set up with preparatory courses in the Faculty of Science.

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[1] The Ministry of Education, *Rapport Annuel, 1961-62* issued by the Direction Générale de l'Education, also announced the forthcoming establishment of a second technological institute with United States assistance, but this did not materialize and it is

TABLE 8. Enrolments and staff of institutions of higher education, 1963/64

Institution and course (with grade indication)	Enrolments		Staff			
			Full-time		Part-time	
	Secondary-level	Higher	Total	Foreign	Total	Foreign
Royal Khmer University						
Faculty of Letters:						
Propédeutique (14)		277				
Certificat d'Études Supérieures (15+)		161				
		438	14	14	5	—
Faculty of Science and Technology:						
Propédeutique: P.C.B.[1] (14)		83				
Propédeutique: S.P.C.N.[1]						
Certificat d'Études Supérieures (15+)		94				
Preparatory year for the Khmer-Soviet Institute of Technology (14)		54				
		231	11	11	16	—
Faculty of Medicine:						
Medicine: degree-level[1] (15-20)		158				
Health officer (11-15)	151					
Dental officer (11-14)	50					
Pharmacy officer (11-14)	23					
State pharmacist[2]	30					
Training in pharmacy[2]	11					
	265	158	—	—	53	17
Faculty of Law:						
Capacité (12-13)	230					
Licence		301				
Doctorat		26				
	230	327	—	—	32	16
Pedagogical Institute:						
Primary teacher training (11-12)	543	—	15	3	13	—
First-cycle secondary teacher training (13-14 or 14)	295	—	21	13	17	4
	838	—	36	16	30	4
Sub-total, Royal Khmer University	1 333	1 154	61	41	136	37
Buddhist University						
First cycle (11-13)	93					
Second cycle (14-17)		15	17			
Third cycle (18-20)		—			--	—
Sub-total, Buddhist University	93	15	17		--	—

Institution and course (with grade indication)	Enrolments		Staff			
			Full-time		Part-time	
	Secondary-level	Higher	Total	Foreign	Total	Foreign
Royal School of Administration						
Higher level (14-15)[3]	—	30				
National School of Public Works, Construction and Mines						
Engineering course (14-17)[3]	—	20				
National School of Commerce						
Higher level (14-16+)[3]	—	80[4]				
GRAND TOTAL	1 426	1 299				

1. P.C.B. = physics, chemistry, biology; students are now enrolled in the Faculty of Science, whereas formerly they were in the Medical School. The Medical Faculty course in medicine therefore covers six years following the P.C.B. S.P.C.N. = physical, chemical and natural sciences.
2. These are recently established training courses on which details on course requirements are not available.
3. There is no separation of staff by levels: for total staff-student data, see Table 5.
4. Estimate; in 1961/62 there were 78 students.

Current plans for the development of higher education include setting up a Royal Institute of Agronomic Sciences, with grades 14-16, and a higher division in the Pedagogical Institute, also with grades 14-16, leading to the *licence*. Moreover, proposals have been made to set up an additional six universities, of which four would be based on existing institutions and two would be new and situated in other parts of the country. However, as instruction in all fields other than law and medicine is still in its initial stages of development and there is a serious shortage of space and laboratory facilities, it would be clearly unwise to take any action on such proposals for quite some time to come.

Over-all responsibility for the Royal Khmer University faculties[1] rests with the Education Ministry's *Direction de l'Enseignement Supérieur*, which has four bureaux: inspection and control of establishments; developments and transformation; staffing; examinations and admissions. However, each faculty, headed by a dean or director, retains a considerable degree of autonomy, and the process of integrating the faculties into a coherent administrative, teaching

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indeed difficult to see how the country could either have needed or afforded a second institute at this stage.

[1] The Medical Faculty is the joint responsibility of the Ministers of Education and Health.

and research organism is far from complete. The Faculty of Science still largely relies on the laboratory facilities at the Medical Faculty, and the Faculty of Letters, with no buildings of its own, gives its courses at the Pedagogical Institute: it is to be doubted, however, whether such arrangements, dictated by necessity, are in fact conducive to genuine co-operation.

The Buddhist University's supreme governing body is an administrative council chaired by the Minister of Religious Affairs, and its academic and administrative head is a rector assisted by a secretary-general. The council membership includes heads of the two religious orders, the rector, and three professors designated by the Minister on the recommendation of the rector. The institution's budget is subject to the approval of the ministries both of Religious Affairs and of Finance.

As enrolment and other fees charged in the higher education institutions are nominal, most of the cost is borne by the State.

Except at the Buddhist University, where Cambodian, Pali and Sanskrit are used, the medium of instruction is French. If, as some would wish, Khmer is to become a medium of instruction in the future, it will evidently be necessary to prepare the way by consolidating its introduction at the secondary level.

ENROLMENTS, STAFF AND OUTPUTS

Institutional enrolments and staffing given in Table 8 for 1963/64 emphasize the emergent character of Cambodian higher education. But when it is remembered that there are also some 500 Cambodians studying abroad (p. 203) and that only seven years before, in 1956/57, there were no more than twenty secondary general and technical schools in the whole country, this is a remarkable achievement. Having come this far, the government is clearly right in declaring that its principal concern is to maintain a high standard,[1] but it is here too that it faces a major problem in that, even among the chosen few, failure rates in terminal examinations are generally high. Another major problem is that, at present, women form less than 12 per cent of the total enrolment in higher education (excluding pedagogy's grade 14, *capacité* in law and medical assistant courses), and they need to be assured of wider access to this, as to the other educational levels.

Even if the Pedagogical Institute's enrolments are excluded, as its higher level is still to be established, the Khmer University facilities bear a heavy burden of secondary-level education, as about 30 per cent of the enrolment is at this level. This is the result of the customary practice, within the French system, of providing *capacité* courses in the Law Faculty and, in present circumstances, the perhaps inevitable combination of the training of doctors

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[1] *Rapport Annuel 1961-62*, op. cit., p. 2.

Table 9. Examination results in higher education: candidates appearing and passing, 1960/61 to 1962/63[1]

Examination	1960/61			1961/62			1962/63		
	Appearing	Passing	Percentage passing	Appearing	Passing	Percentage passing	Appearing	Passing	Percentage passing
Letters									
Propédeutique	29	15	52	27	18	67	84	38	45
Higher certificates leading to *licence*	—	—	—	—	—	—	33	13	39
Science									
Propédeutique:									
P.C.B.	27	20	74	37	26	70	...		
M.P.C.[2]	6	3	50	6	2	33	...		
S.P.C.N.	—	—	—	4	2	50	...		
Law									
Licence	7	4	57	11	11	100	...		
Medicine									
Year I	...			22	13	59	...		
Year II	...			9	4	44			
Year III	...			18	12	67			
Year IV	...			21	11	52			
Year V	...			12	11	92			

... Data not available.

[1] Only first-session examination results are given for 1960/61 and 1961/62.

[2] M.P.C. = *propédeutique* in mathematics, physics and chemistry. The course was subsequently discontinued due to lack of qualified candidates.

and of medical assistants. The situation is made more difficult by the fact that it is precisely in these fields that there is no full-time staff.

If pedagogy and secondary-level enrolments are left out of consideration, the percentage distribution of enrolments by main fields of study appears to be: arts and social sciences 68; natural sciences, including the preparatory year for medicine but not for engineering, 14; engineering 6; and medicine 12. There is no provision for agriculture or teacher training. Development in these two fields and in the natural sciences should clearly have the highest priority in plans for the future. But expansion needs to be reinforced by improvement in the provision of facilities, more full-time staff and better staff/student ratios, especially in the arts and medical fields.

Available examination results for recent years (shown by Table 9), although not complete, are sufficient to indicate a generally alarming high failure rate.

While the Law Faculty offers the full *licence* course of four years—followed by facilities for doctoral studies, normally requiring a further two years—and the Medical Faculty graduated its first doctors (11) in 1963, the faculties of Letters and of Science are in process of building up resources to provide full four-year courses toward the *licence* in these subjects.

The proposed higher level of teacher training aimed at an annual output of 30 upper secondary teachers. It is to recruit students by competitive examination from among candidates who have passed their propedeutic year (grade 14) in letters or science for a three-year course leading to a *licence*.

In agriculture, the planned institute is initially to provide only an accelerated three-year course, recruiting students from among those holding the general *baccalauréat II*, the agricultural *baccalauréat I* or *II*, and by competitive examination for other candidates with suitable experience. Later this is to be extended to a full four- or five-year course. It has been officially estimated that an annual output of 40 agricultural engineers should be sufficient to cover the needs of both public and private sectors during the next ten to fifteen years; the staff of the institute would also be responsible for undertaking research and extension work.

The Institute of Technology is designed to offer five-year courses, of which the first two to three years, varying according to the selected field, would be of general study, to be followed by specialization in separate sections for electro-technology, agricultural hydraulics, architecture and building, mines, and textiles. The ultimate output is set at 200 from a total enrolment of 1,000 students;[1] but, as indicated, in 1963/64 only 53 students were taking the preparatory course to enter the institute. Care will have to be taken that in the future output does not outstrip the demands of an economy whose industrialization is not likely to expand rapidly. Indeed, one estimate quoted

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[1] This assumes a 100 per cent pass rate!

TABLE 10. Cambodian Government scholars by country of study and subject area, 1963/64

Subject area	Number of students		
	France	Belgium	Switzerland
Arts and science[1]	10		
Engineering	20[2]	8[3]	5[2]
Medicine	2		
Veterinary science	3		
Other vocational	4		
	39	8	5
GRAND TOTAL	52		

1. Separate statistics not available. Most graduates intended for upper secondary-school teaching.
2. Including architecture.
3. Including agriculture.

by the URAT report suggests that an annual output of 20 engineers should be sufficient to meet needs for the next ten years (i.e., up to 1973).

On the other hand, in 1962 the proportion of doctors plus health officers to the population is estimated to have been as low as 1:36,000. Hunter suggests that, to achieve a first target of 1:15,500 in five years, annual outputs of 20 doctors and 40 health officers might be aimed at. He goes on to say that: 'The difficulty lies in a certain sluggishness in the recruitment to the *officier de santé* course and a deplorably high failure rate.... But if Cambodia is to have a medical service which is even passable by the standards which will obtain in 1970, heroic efforts will have to be made to improve recruitment to the courses and (even more important) to cut down failure rates.'

STUDENTS ABROAD

Cambodia has been sending a considerable number of its students abroad for higher study: in 1963/64 some 500, of whom 365 were on foreign government and international scholarships, 52 on Cambodian Government scholarships, and 84 were authorized private students. Available details on such study abroad for 1963/64 are given in Tables 10 and 11, but subject breakdowns are available only for Cambodian Government scholars.

The concentration of government scholarships and authorized private study in France confirms the close link with the higher education system in France, while the large number of students in the United States and the U.S.S.R.

TABLE 11. Cambodian students abroad on foreign scholarships and authorized private basis by country of study, 1963/64

Country	Foreign scholarships[1]	Authorized private	Total
Australia	11	—	11
Belgium	1	1	2
Bulgaria	3	—	3
Canada	15	1	16
China, People's Rep. of	—	4	4
Czechoslovakia	13	—	13
France	23	61	84
Germany, Fed. Rep. of	13	—	13
Hawaii	4	—	4
Hong Kong	—	1	1
Japan	11	—	11
Switzerland	—	5	5
U.S.S.R.	56	—	56
United Kingdom	5	11	16
U.S.A.	208	—	208
Yugoslavia	2	—	2
TOTAL	365	84	449

1. Most students are in the fields of upper secondary teacher training, engineering, architecture, commerce and banking, medicine, pharmacy, dentistry, veterinary science, agriculture, irrigation, forestry, fishing, rural industries and nutrition, and physical education, i.e., apart from the teacher trainees, apparently none in the arts or sciences.

reflects a generous provision of scholarship opportunities in these countries. Finally, in so far as indications are available, the emphasis seems, if anything, to be somewhat exaggeratedly in favour of applied and vocational higher studies. In future, the country will surely need to give greater attention to training Cambodians abroad for research in the basic sciences, arts and social sciences. In this connexion it is, as a beginning, refreshing to note that two of the government scholars abroad were studying at the Louvre.

EDUCATIONAL OBJECTIVES AND FINANCE

Major public education projects listed in the 1960-64 Five-Year Plan (Preah Norodom Sihanouk) have been largely realized or are in process of implementation: construction of the Faculty of Science and College of Commerce; construction of technical schools at Battambang and Kompong Cham; expansion of the national school of industrial arts, the teacher-training centre at

TABLE 12. Public expenditure on education by major available categories, 1960-64[1] (in thousands of riels, rounded)

Category	1960		1961		1962		1963		1964	
	Amount	Percentage	Amount	Percentage	Amount	Percentage	Amount	Percentage	Amount	Percentage
Ministry of Education	59 416	7.5	67 286	8.2	58 260	6.0	56 285	5.0	53 420	4.7
Primary	508 947	64.1	512 414	62.4	512 853	52.7	673 976	60.0	697 000	61.2
Secondary	154 033	19.4	157 425	19.2	284 408	29.3	278 601	24.7	276 242	24.3
Vocational	28 634	3.6	34 205	4.1	44 902	4.6	46 445	4.1	45 520	4.0
Higher	16 960	2.1	24 251	3.0	41 050	4.2	36 462	3.2	35 351	3.1
Other[2]	25 865	3.3	25 553	3.1	30 948	3.2	33 271	3.0	30 440	2.7
TOTAL	793 855	100.0	821 134	100.0	972 421	100.0	1 125 040	100.0	1 137 973	100.0

Source: URAT report.

[1] Including other ministries as well as the Ministry of Education.

[2] Includes budgetary items for art education, scholarships, school welfare and cultural relations.

TABLE 13. Over-all public expenditure by types of education under the Second Five-Year Plan, 1966-70 (in thousands of riels)

Type of education	Buildings	Equipment	Personnel	Contingent expenditure	Total
Primary	50 840	20 000	490 000	28 717	589 557
Secondary	152 000	96 000	250 500	25 625	524 125
University[1]	587 700	504 009	1 259 468	121 611	2 472 788
Adult	13 000	64 620	20 880	4 925	103 425
TOTAL	803 540	684 629	2 020 848	180 878	3 689 895

Source: *Member States Progress Report, Cambodia, 1965*, op. cit., p. 7.
1. Includes all technical and vocational education.

Kompong Kantout, and the fundamental education training centre at Tonlé Bati; construction of housing for teachers. In the Second Five-Year Plan, 1966-70, it is stated that measures are to be taken to move toward goals set by the Karachi Plan and that, together with integration in the over-all development plan, education has been included: '... on the same footing as other priority sectors of investment.

'Apart from the normal calculations in respect of buildings, their equipment, and staff, special attention is being given to the final results at each level, under the next Five-Year Plan, the essential objectives of which cover the development of our economy in its twofold aspect: agricultural and industrial, but without underestimating the problems of social development.'[1]

Cambodia has in recent years placed very considerable emphasis on education in terms of investment ratios to both national income and budget: the percentage of the latter devoted to education has fluctuated recently between 12.3 per cent in 1954 to 17 per cent ten years later.

Public expenditure on education by broad categories between 1960 and 1964 shows significant increases in the outlays for secondary, vocational and higher education as shown in Table 12, and in the 1966-70 Second Five-Year Plan, the provision for universities (Table 13) is so large as to induce fear of an error in computation.

However, before tabulating data for the Second Five-Year Plan, it is also to be noted that changes in the percentage distribution of expenditure have, with the exception of secondary education, been comparatively slight. This is doubtless explicable in terms of the rapid major expansion of general secondary education and the rather small numbers involved in higher education which, except for law and medicine, are enrolled in its early stages.

According to these figures, during 1966-70, planned expenditure on higher

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[1] *Member States Progress Report, Cambodia, 1965*, op. cit., p. 6.

TABLE 14. Recurrent costs per pupil/student, 1963/64 (in riels)

Level	Planning Office figures	As revised by URAT
Primary	1 078	1 100
Secondary	6 008	6 500
Vocational	11 193	16 000
Higher	19 957	30 000

and all levels of technical/vocational education is to amount to well over twice that for all other sectors of education. If this is not accounted for by an error of computation or presentation, it is impossible to avoid the conclusion that an important priority is being carried too far.

On recurrent per pupil or student costs, official figures of the planning office have, according to the URAT report been placed too low by not taking account of ministerial expenditures and new costs of expansion financed locally for primary education and through foreign aid for vocational and higher education. Thus Table 14 gives both Planning Office and revised higher URAT figures for recurrent costs.

The biggest differences occur in the fields of higher and vocational education so that, in proportional terms, the cost of higher education in relation to primary education rises from around 20:1 to 30:1; and of vocational to secondary education from 2:1 to 2.7:1. Obviously, plans for future educational development and investment must make a careful review of these data if unhappy surprises are to be avoided.

Republic of Viet-Nam

BACKGROUND

LAND AND PEOPLE

Topography

The Republic of Viet-Nam, which came into existence as an independent State through the division of Viet-Nam established by the Geneva Agreement of July 1954, comprises the eastern part of the Indo-Chinese peninsula south of the seventeenth parallel. On the west, it is flanked by Cambodia in the south and Laos in the north, the territory of the latter continuing northward above the seventeenth parallel to form a common border with the Democratic Republic of Viet-Nam. On the east, a long convex coastline faces the South China Sea, ultimately reaching into the Gulf of Siam.

Extending over a total area of some 172,000 square kilometres, South Viet-Nam consists of three major regions: (a) the southern delta of the Mekong river, which after flowing through Laos along its border with Thailand, enters Cambodia before dividing first into two and then three major branches disgorging into the South China Sea near the southernmost tip of Viet-Nam; (b) the eastern coastline; and (c) the central highland area between the lowlands and the south.

Saigon, the capital of the country, is situated near the north end of the Mekong Delta, about 30 kilometres from the sea, with port facilities on a meandering but deep river. The area south of Saigon, and north of it up to the highlands, where about 65 per cent of the population is concentrated, is a rice-growing basin of alluvial soils. Significant crops of coco-nut are grown, mainly in the northern part of the delta area, and sugar-cane is also cultivated, mainly to the north-west of Saigon.

The coastal area of lowlands further north consists of broad alluvial valleys cut into the mountains by rivers draining into the sea, and these displace the highlands along most of South Viet-Nam's northern territory

TABLE 1. Estimated population growth from 1963 to 1972 (millions)

Year	Population	Year	Population
1963	15.2	1968	17.3
1964	15.6	1969	17.7
1965	16.0	1970	18.2
1966	16.4	1971	18.7
1967	16.8	1972	19.1

Source: National Institute of Statistics (1961).

bordering on Laos. While this area is largely used for intensive rice planting, tobacco, sugar-cane, and coco-nut palms are also cultivated in significant quantities. It is estimated that some 30 per cent of the total population lives in these lowlands.[1]

The lower southern part of the highlands, with an altitude of about 900 metres, is mainly devoted to the cultivation of rubber. Higher up in the northern reaches of the highlands, tea and coffee are the main crops. A very considerable proportion of the highlands north of the hill station of Dalat is malarial, sparsely populated by Montagnard tribes. However, malaria eradication and resettlement programmes from the more densely populated areas are now in progress. It was estimated that less than 5 per cent of the total population inhabited the central highlands in 1960.

Demography

Owing to poor security conditions, plans for a general census in 1959 had to be abandoned. However, the preparatory work undertaken by the National Institute of Statistics included some data from local authorities in the *communes,* which it felt provided a fair basis for a satisfactory estimate of population for 1960. This, set at 14,072,000, and the extrapolated estimate for 1961 at 14,500,000 are very close to the United Nations *Statistical Yearbook, 1962,* estimate of 14,520,000 for 1961. However, while the *Yearbook* indicates a growth rate of 3.9 per cent, the institute estimates this at 3.0 per cent between 1960 and 1961,[2] and population growth on the basis of a constant birth (3.8 per cent) and death (1.2 per cent) rate at 2.6 per cent from 1963 to 1972, as in Table 1.[3]

Sample surveys made for 1960 by the National Institute of Statistics suggest that more than half the population is in the under-25 age-group, that the

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[1] National Institute of Statistics estimate for 1960.

[2] National Institute of Statistics, *Population Increase Survey, 1961.*

[3] The Unesco Regional Advisory Team for Educational Planning in Asia (URAT) arrived at somewhat different projections on the basis of population growth rates of 2.5 per cent for 1965-70, 3.0 per cent for 1970-75 and 2.7 per cent for 1975-80.

TABLE 2. Total population and school-age group projections, 1965-80 (thousands)

Population	1963	1965	1970	1975	1980
Total	15 200	15 600	17 700	20 500	23 400
Age groups					
6-10	2 151	2 282	2 370	2 620	3 036
11-14	1 418	1 612	1 790	1 870	2 114
15-17	877	960	1 170	1 460	1 417

primary school age-group of 6-10 form just over 13 per cent of the total population (i.e., nearly 1,850,000), and the secondary school age-group of 11-17 about 13.5 per cent (i.e., nearly 1,890,000), including 8 per cent in the 11-14 age-group for the lower secondary level.

Various factors add to the difficulty of making even rough estimates of population by age groups, not least of these being the influx of some 850,000 people from the north following the division of the country in 1954. However, in Table 2 rough figures for three school-age groups have been taken directly from tables or calculated from data in the URAT report.

While the 1963 population estimate of the National Institute of Statistics suggests a low population density of about 88 inhabitants per square kilometre, this is somewhat misleading because of high concentrations of population in the fertile areas. In the six provinces around Saigon in the Mekong Delta, the average population density is estimated to be more than 200 per square kilometre, and in certain parts, including Saigon (with a density of nearly 28,000 per square kilometre) as high as 1,200 per square kilometre. On the other hand, in the central highlands, while the slopes of the mountains near the lowland coastal area are thickly populated, most of the rest of the area has population densities of as little as 10 per square kilometre. Furthermore, it is estimated that in Saigon-Cholon a population concentration of 1.5 to 2.0 million is to be found, the city of Saigon alone, according to a survey carried out in 1962, having 1.43 million inhabitants, forming around 10 per cent of the total population. The major cities next in size, Hué and Danang, each claim at least 100,000 inhabitants.

Ethnography

The origins of the Vietnamese (literally southern Viets) is a matter of some dispute, though it has been suggested that they were a people who migrated from China southward along the coast. However this may be, the Vietnamese (influenced by intermarriage and Indian as well as Chinese and Lao, Khmer, and Thai culture), form the great majority of the population. Important minorities are the Chinese, the Montagnards (tribesmen of the highlands, in Vietnamese known as *Moi*), the Chams, and the Cambodians. The Cambodians, who live in areas conquered by Viet-Nam during the seventeenth and eighteenth centuries, have been almost entirely assimilated and are not regarded as presenting a minority problem. The Chams, although influenced by Malayan racial and Hindu cultural influences and forming until A.D. 1471 the powerful Kingdom of Champa, were originally close relatives of some of the mountain tribes and are today considered to form part of the Montagnard minority.

Although the conquests and immigrations of the Chinese into Viet-Nam before the eighteenth century had led to intermarriage and mutual assimilation, thereafter, due to various economic and political reasons, new Chinese immigrants tended to remain isolated and became increasingly dominant as a distinct group in the commercial life of the country, ultimately controlling more than 80 per cent of the capital in the retail trade. Various attempts to assimilate them through citizenship laws initially met with considerable obstruction, but have apparently had some success since 1957. In 1957, no more than 3,000 of an estimated 600,000 Chinese nationals born in South Viet-Nam complied with the Citizenship Law of 1956; by July 1959 some 230,000 had opted for Vietnamese citizenship. However, according to *The Statistical Yearbook of Viet-Nam, 1960/61*, there were in 1961 still a total of some 17,300 Chinese nationals, most of whom were concentrated in the southern region. The distinct role they still play in the economic life of the country, particularly in Saigon-Cholon and the other major cities, continues to represent a source of potential friction.

The Montagnards, estimated to form about 4.7 per cent of the population in 1960,[1] have, due to social and political factors in the past, remained comparatively undeveloped for centuries and now continue to be suspicious of all efforts to assimilate them and raise their standards of living. They are thinly spread over an area amounting to nearly half the size of the republic: this, despite recent development efforts, is still largely cut off from the rest of the country. There are more than thirty different tribes (probably of mixed Nesiot, Negrito and Papuan origins) of every shade of colour, with separate dialects and different customs, representing various stages of retarded social and economic progress, generally using methods of shifting cultivation and destructive of valuable forest resources.

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[1] National Institute of Statistics.

THE SOCIO-ECONOMIC SITUATION

The political background

It is not easy to draw a brief sketch of the current situation of the republic's economy and to outline its social and cultural orientation. Apart from a long history of varied racial and cultural influences, including nearly 100 years of French rule, there are even more complex, politically oriented, circumstances which have arisen more recently with the division of the whole of Viet-Nam into two 'Nation-States' and the continuing civil war within South Viet-Nam. In the present context it would be inappropriate to attempt any searching analysis of the last two problems, and yet there is no aspect of life in Viet-Nam that is not vitally affected by it. Indeed the Second Five-Year Plan, 1962-66, gives first priority to the achievement of victory against the opposing Communist forces and the establishment of security. The new government of the Military Revolutionary Council lays similar emphasis on this objective, but it realizes that in order to achieve it, equal importance will have to be given to improving the living conditions of the people. In view of these factors, avoidance of socio-political history and current circumstances can only lead to the presentation of a most unrealistic and artificial outline of the situation. In the following few paragraphs a brief factual attempt, without evaluative comment, is therefore made to indicate the nature and magnitude of the main problems inherited from the past and involved in the present struggle.

When the French occupied Saigon in 1860 and gradually gained control over the whole of the Indo-Chinese peninsula, the emperors of Viet-Nam had for long been under Chinese dominance, and the social structure of the country showed strong Confucian and Taoist influences—giving special characteristics to the practice of Buddhism—and combined the centralized Mandarin system of China with the age-old system of autonomous village communities. The French took their '*mission civilisatrice*' seriously and a superstructure of Western organizations, principles, laws, and techniques grew up under their administration. The traditional autonomy of the villages was destroyed. Developments, while beneficial, were nevertheless geared rather to the needs of the French authorities than to the local people. The administrative system for the federation as a whole favoured local 'patriotism' and was based upon the existing divisions between South Viet-Nam (then known as Cochin China, governed directly as a colony of France), Central Viet-Nam (Annam) and North Viet-Nam (Tonkin) forming protectorates, and the vassal kingdoms of Laos and Cambodia.

It was therefore not surprising when Viet-Nam regained its independence after a long and painful struggle against the colonial régime of France as recently as July 1954, that not only was the Indo-Chinese Federation divided into Cambodia, Laos, and Viet-Nam, but Viet-Nam itself was partitioned into southern and northern Nation-States divided at the seventeenth parallel into two ideologically opposed socio-political entities. But the division of Viet-Nam itself, without any feasible follow-up of original proposals for reunification made in the 1954 Agreement and with the subsequent civil war in the republic, has in addition to other difficulties, created major economic problems for both parts of the country. The South was almost entirely agricultural, though it possessed some light industry. The North was comparatively industrialized, meeting all national requirements for cement and exporting a considerable surplus: it filled 50 per cent of the need for cotton textiles and provided a source of coal and a market for rice from the South.[1] It also, at the time of partition, had at Hanoi the only university in the country and most technical manpower was concentrated in Tonkin.

When in the period immediately following partition some 850,000 people, mostly Catholics, migrated from the North to the South, this was in part of great advantage to the South in so far as among them there were a significant number of both administrative personnel and teachers and students from the University of Hanoi, who helped to develop the Saigon branches of the university into a comprehensive university institution. However, the settlement of a large number of these immigrants also presented a major problem. Some 300 new villages came into existence for this purpose and, initially at least, there were considerable misunderstandings and much friction between the easy-going southern population and the more aggressive and energetic immigrants from the North.

Furthermore, the exodus of the French army involved the loss of a large internal market, and the departure of French administrators, technicians and businessmen created difficulties which had to be met through special measures, including more and more United States military, economic and technical aid.

However, the biggest and increasingly serious problem for the country after partition has been the war between the State and the Viet-Cong[2] guerrillas supported by the North. It has distorted the socio-economic restructuring of the country because of defensive and strategic considerations. Achieving a decisive end to hostilities is in turn made more difficult because of socio-economic factors affecting the life and incentive responses of the peasant and because of internal strains among the anti-Communist power groups, including the politico-religious sects of Cao Dai, Binh-Xuyên and Hoa Hao, which at the time of independence had armies totalling some 50,000 men and in their areas of influence exercised a feudal domination.

To deal with this situation, apart from defence measures, which until the summer of 1959 were largely the responsibility of the Civil Guard, a local

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[1] The parallel with the division of Korea is striking.

[2] Supporters of the Communist Viet-Minh régime in the North, originating from politico-administrative committees and Communist cadres, a hard core of which was left behind when the Viet-Minh forces withdrew to the North after partition.

'autodefence' supervised by the army, major efforts were made to introduce land reforms and win the full support of peasants. Through these, land in the South formerly owned by some 1,000 landlords was redistributed among 112,000 farm families (although the landlords were permitted to retain up to 100 hectares), and a rural credit system at nominal interest rates was introduced through the National Agricultural Credit Organization. Furthermore, the State assisted people from overcrowded towns and villages in the southern and coastal plains to resettle in the wild and often unexplored reaches of the highlands. By 1961, some 12,000 families, comprising 52,000 individuals, cleared more than 30,000 acres of fertile forest land along the Laos border.

When, toward the end of 1959, internal hostilities became significantly intensified, attempts were begun to reorganize large defensive units of hamlets, called *agrovilles*, with populations of about 2,000 and a viable economic structure, including provision for a central market and for schools, health services and electric power. By the end of 1961, eighteen such *agrovilles* had been established. But then the programme was abandoned because, in addition to opposition from peasants, who resented displacement from their hamlets, the long distances that had in many cases to be covered to reach their fields, and the heavy construction work they had to undertake in building up the *agrovilles*, they proved particularly vulnerable to Viet-Cong attacks since they presented conveniently large targets. Learning from experience gained in the guerrilla war in Malaya, efforts were then concentrated on developing smaller units of strategic hamlets (also referred to as *agrovilles*). In addition to surrounding existing villages by barbed wire, thorn bushes, and, booby traps, and providing defence training, this also involved giving special attention to full programmes of community development in order to promote education and welfare facilities as well as agricultural progress. By the end of 1962, some 6,000 such hamlets had been established; but due to other considerations, including the intensity and extent of hostilities, major emphasis was given to defence requirements. While the percentage of the total national budget (including United States aid) spent on defence increased from an average of less than 43 per cent for the four years 1958-61 to over 55 per cent for the two years 1962 and 1963 and in 1963 more than doubled the percentage of 1958, expenditure on the civil budget (including economic development) increased by only one-third for the corresponding period. But even with this emphasis on defence the Viet-Cong has maintained and expanded its strength, partially controlling considerable areas north-west and south-west of Saigon, including much of the Mekong Delta area, and exercising complete control over a number of coastal valleys and pockets in the highlands and between Saigon and Dalat.

More recently, the régime of President Ngo Dinh Diem began to meet with popular Buddhist opposition as well as having to contend with increased obstructive manoeuvres from the Cao Dai and Hoa Hao. Restrictions were placed on the liberties of the Buddhist priesthood, and following a series of protest suicides of Buddhist monks and increasingly active demonstrations by students, in which many teachers joined, the Ngo régime was overthrown by a military coup on 1 November 1963.

The constitution adopted in 1956 was suspended, the National Assembly elected in September 1963 dissolved, and a Military Revolutionary Council assumed executive power. On 30 January 1964, a second military coup, subsequently referred to as a 'purge' or 'housecleaning' took place and Major-General Nguyen Khanh assumed the chairmanship of the reorganized Military Revolutionary Council. According to Major-General Khanh's policy statement of 8 March 1964, it appeared that the Five-Year Plan was to be retained, but that increased attention was to be given to 'national salvation' and 'national development'. Accordingly 'pacification committees' were to be formed at the provincial level, comprising the provincial chief and technical representatives of the ministries, which would be responsible for the supervision of education, health, land reform and civic education in their area. At the village level, a 'New Life Hamlet Programme' was to retain the best of the old strategic hamlet system, but, emphasizing quality rather than quantity, it was also to give as much attention to improving standards of living, public health and education—which so far had been nominal parts of the hamlet programme—as to security and defence factors. For this purpose, foreign aid and the national budget were to be geared to give top priority to the rural sector, and the youth of the country were to be organized to provide an effective force for community development. The government also announced its intention of transferring 20 per cent of the teachers and civil servants now working in towns to rural areas, placing them at the disposal of the pacification committees. It was proposed to initiate a system of elections in the villages; but a constitution remained to be worked out.

Apart from the fact that while the peasant, who has suffered most in the ten years of war, longs for peace and security, hostilities continue unabated, there are other problems of instability and uncertainty in the current situation. The last two coups inevitably disrupted the former unity of the army.[1] Many experienced administrators have been removed from office, others are hesitant to accept responsibility within a régime whose future is uncertain. Some newly appointed cabinet ministers resigned, others are on the verge of doing so. Several generals are in jail on charges of 'neutralism', which together with Communism is formally outlawed. The form and effectiveness with which the policy on national development is to be implemented remain to be seen; until March 1964, first efforts were largely directed toward training 'civic action cadres' with ambiguous functions of exhortation in the hamlets, and large numbers of them were inactive in provincial towns awaiting orders.

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[1] Since this section of the profile was written, other coups have followed, the intensity of hostilities has considerably deepened, internal dissensions among the Vietnamese have welled up and dissatisfaction with a military government is again being widely expressed.

'autodefence' supervised by the army, major efforts were made to introduce land reforms and win the full support of peasants. Through these, land in the South formerly owned by some 1,000 landlords was redistributed among 112,000 farm families (although the landlords were permitted to retain up to 100 hectares), and a rural credit system at nominal interest rates was introduced through the National Agricultural Credit Organization. Furthermore, the State assisted people from overcrowded towns and villages in the southern and coastal plains to resettle in the wild and often unexplored reaches of the highlands. By 1961, some 12,000 families, comprising 52,000 individuals, cleared more than 30,000 acres of fertile forest land along the Laos border.

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It has, however, been more clearly realized than ever before that the internal strife can be ended only by gaining the full support of the peasants and that this will be forthcoming only if land reform and rural development assure them of a better standard of living and of the possibility of peace and security. There is something of a vicious circle involved here; but massive United States aid is designed to promote economic and rural development as well as to meet the requirements of military operations.

The economy

Only a few rough estimates are available to indicate the rate of economic growth in South Viet-Nam and more than half its annual national expenditure is met through United States aid. With these provisos, it is to be noted that GNP estimates of the National Bank of Viet-Nam for 1956 (68,658 million piastres) and of the Unesco Mission of Investment in Education[1] for 1962 (82,000 million piastres) suggest a growth rate of 3 per cent per annum over the six-year period. Since during this time population increased at about the same rate of growth, there was, at constant prices, no change in *per capita* income, which in 1962 amounted to about $91 per annum.[2] More recent estimates of the National Bank of Viet-Nam indicate the following GNP at market prices: 1960, 83,037 million piastres; 1961, 85,815 million piastres; 1962, 95,525 million piastres.[3] These figures suggest that from 1960 to 1962 there has been a total GNP growth of about 15.4 per cent. Nevertheless, if inflationary tendencies are taken into account, there actually appears to have been a decline in real *per capita* income, as between 1960 and 1962 the wholesale general price index rose by about 15 per cent and the general index of the cost of living by about 10 per cent. The National Bank estimates for 1956 suggested that only 27 per cent of GNP was generated by agriculture, while 16 per cent was due to industry, mining, construction and public utilities, 30 per cent to commerce, 14 per cent to administration, and 13 per cent to miscellaneous sources. More recent data for the industrial origin of net domestic product indicate the following percentage shares: agriculture, 32.5; mining, manufacture and construction, 12.6; trade and ownership of dwellings, 17.9; transportation, utilities, public administration, defence and other services, 37. Although these figures are approximations, both sets emphasize the relatively exaggerated role of the tertiary sector and the low level of productivity. In contrast to this situation, the planners hoped that the rate of growth in GNP could in future be raised to 5 per cent per annum, which

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1. *Mission d'étude des programmes d'investissements en matière d'éducation, Viet-Nam, octobre-novembre 1963*, p. 14 (Unesco, Paris, 1964).
2. At the rate of U.S.$1 = 60 piastres as the standard rate for commercial operations established in December 1961.
3. *Revue mensuelle, bulletin économique*, Banque Nationale du Viet Nam, No. 9-10, October 1964, p. 16.

with estimated population growths varying between 2.6 per cent and 3.0 per cent. would yield a *per capita* economic growth rate of between 2.0 and 2.4 per cent.

While no more recent estimates of GNP are available, various economic indicators show that after a downward trend in 1961 and 1962, there has, despite intensified hostilities, been a significant change for the better in 1963. United States economic aid reached a total of $208 million for the fiscal year 1962/63 ending on 30 June 1963, as against $143 million for the fiscal year 1961/62. The trade deficit remained large, rising to $226.2 million in 1963, but the coverage of imports by exports stood at about 27 per cent as against little over 18 per cent in 1962, largely due to a great increase in rice exports. Furthermore, foreign exchange holdings, which had fallen sharply between 1960 and 1962, increased by nearly 39 per cent from about $78.7 million in 1962 to $109.2 million in 1963. Finally it is also to be noted that in December 1961 there was a *de facto* devaluation in the piastre from 35 to the dollar to 60 to the dollar for all commercial transactions.[1]

At this stage, before going on to outline the current situation in the agricultural and industrial sectors, it would seem appropriate here to indicate the nature and scope of United States aid. This has included the following main items in addition to military and other defence assistance:

1. The Commercial Aid Programme (CAP) is designed to help Viet-Nam meet its import requirements, with the condition that counterpart funds be devoted to defence and economic development projects. In 1963 the programme financed about two-thirds of the imports of Viet-Nam, and thenceforth strictly excluded imports from certain countries. While the latter regulation meant that the United States greatly increased its exports to Viet-Nam, it did not exclude, but even promoted, imports from neighbouring Asian countries. It is, on the other hand, scarcely encouraging to note that whereas the percentage of total imports coming from the United States has increased (to 37 per cent in 1963 from 4.3 per cent in 1953), the percentage of total Vietnamese exports to the United States has declined (to 1.5 per cent in 1963 from 22.0 per cent in 1953).

2. Under United States Public Law 480, the import of agricultural products from the United States—including wheat, dairy products, cotton and tobacco —is financed on the understanding that a counterpart of 90 per cent of the cost involved would be made available in Viet-Nam for defence purposes.

3. Direct assistance in the form of equipment and technical assistance for economic development and of food supplies to support the hamlets programme and to meet relief requirements is provided without any counterpart requirement.

Until 1964, total United States aid, including military assistance, to Viet-Nam amounted to about $1.5 million per day, that is nearly $550 million per year, of which it is estimated that well over $300 million per year was allocated for military purposes in 1963. In 1964 the United States Government announced that it proposed to increase this aid by $125 million, of which $75 million would be provided for economic purposes; and subsequently the total amount of economic and military aid from the United States in 1964 was estimated at over $2 million per day.

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[1] The tourist rate is $1 = 73 piastres.

Assistance is also received on a much smaller scale from some other countries, mainly in the form of loans from France and Germany and of reparations from Japan to finance specific projects.

The whole economy of South Viet-Nam is thus heavily dependent on foreign aid and the possibility of annual fluctuations in this makes planning for economic development even more difficult. On the other hand, since a considerable proportion of economic aid has to be counterbalanced by budgetary provisions for defence, if hostilities were to come to an end, substantial national resources, including manpower as well as finances, would become available for investment in economic development. While it is difficult to plan for this eventuality, it is nevertheless still possible to foresee the country returning to a normal state and financing its economic development without a continuation of excessive foreign aid, particularly if the income tax system were improved: in 1962 and 1963 income tax formed less than 5 per cent of total revenue.

Agricultural development is greatly handicapped by insecurity and military operations in rural areas. Indeed, what is surprising is not the slow progress in diversification and development of cultivable areas—only 30 per cent of these being exploited at present—but the fact that production has been maintained and in most cases significantly increased between 1953 and 1961.

Rice is the staple diet, and next to rubber it is also the main export item. While export of rice has not attained anywhere near its pre-war level of 1 million metric tons,[1] production has increased from 2,463,000 in 1953 to 4,609,000 metric tons in 1961, which was actually a bad year, as in 1959 production had risen to well over 5 million tons. The production estimates for 1962 and 1963 are again well over the 5 million mark. Also, while the area under cultivation has decreased slightly since 1944, the yield per hectare with the increased utilization of fertilizers and modern techniques, doubled between 1944 and 1961. On the other hand, loss due to insect and rodent damage is estimated to be as high as 12 per cent of the crop.

For rubber the total planted area decreased from 108,400 hectares in 1944[2] to 62,300 hectares in 1953; but since then there has been a steady increase, and the total planted area in 1963 amounted to 142,800 hectares. Even so there are at present around 350,000 hectares of undeveloped land suitable for rubber cultivation. Planting of new rubber trees until 1960 progressed well;

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[1] This figure includes Cambodian rice passing through the port of Saigon.

[2] Only large plantations.

but with lessened security, there was a sharp decrease in new plantings, and as against 4,300 hectares in 1960, only 700 hectares were planted in 1963, and in all of the three years 1961-63, little over 4,400 hectares.

Owing to a drop in prices, while exports of rubber generally increased with production, there was a decrease in export earnings, which fell from $48 million in 1960 to about $38 million in 1962. It is also instructive to observe that for each imported ton of manufactured rubber products of all types Viet-Nam had to pay well over three times the price it secured for each ton of raw and processed rubber that it exported.

There has been a general increase in the production of miscellaneous crops, such as: (a) food crops of corn, sweet potatoes, soya and other beans, and sugar-cane; (b) textile crops of jute, cotton, kapok, ramie, and kenaf; (c) oleaginous crops of peanuts and copra; and (d) tea, coffee, and tobacco.

However, while surveys undertaken in 1962/63 showed that there were fair prospects for the cultivation of cotton, poor security conditions again made it impossible to follow up this potential.

There is clearly great scope for the development of agriculture in South Viet-Nam. The increase in the productivity of crops other than rice and rubber shows that skill as well as natural conditions are available to build up a more soundly diversified agricultural base for the country's economy.

In the industrial sector significant and steady progress has been achieved, which if not spectacular shows how much more could be done under more favourable circumstances.

Textile mills established in the Saigon-Cholon area in recent years were expanded during 1962/63: with the completion of the projects under way, there would be 130,000 spindles and 3,300 automatic looms which should produce enough to meet 85 per cent of the country's need for cloth. Marking this development, expenditure on the import of fabrics dropped from about $37 million in 1958 to little over $6 million in 1963, while the value of yarns imported in the same years increased from about $10 million to just over $22 million.

National needs for jute bags, paper, and bicycle tyres and tubes will, with the full operation of a number of new factories, be largely met. The total planned output of cement will ultimately fill 75 per cent of requirements, whereas production in 1964 met only around 16 per cent of the need. There is still only one sugar refinery in Saigon; but in 1964 contracts were signed with a Japanese firm and a Japanese Government loan obtained for the construction of two factories in central and southern Viet-Nam.

Two large-scale projects to establish industrial complexes are under way. Work on the Nong Son-An Hoa complex, 50 kilometres south-west of Tourane, was started in 1963 and all infrastructure has been completed. Machinery, for which loans have been advanced by France and the Federal Republic of Germany, has been ordered for: a thermo-electric power plant with a capacity of 25,000 kW; a transmission line to carry power to the complex and also to Quang-Ngai and Tourane; a fertilizer plant with an annual output of 42,000 metric tons of urea and 48,000 metric tons of ammonium sulphate; and other plants for the production of coal gas, liquefied air, sulphuric acid, and synthesized ammonia. Another industrial zone is being promoted some 30 kilometres from Saigon, where a National Public Interest Company is in charge of acquiring land, preparing the infrastructure and leasing sites to private industrialists. However, despite laws favourable to private investment, unstable conditions clearly intimidated entrepreneurs, local as well as foreign, though numerous minor plants have been set up.

Furthermore, while an industrial base is thus emerging and progress has been fairly steady in many fields, the present scale is still small. In 1962, out of a total manufactured production from significant-sized plants valued at about $95 million,[1] beverages accounted for about 30 per cent, processed foodstuffs 20 per cent, textiles 17 per cent, and tobacco 14 per cent.[2]

Although South Viet-Nam produces no petroleum, it is planned to establish a large oil refinery in central Viet-Nam with a capacity of over 24,000 barrels per day, sufficient to cover the country's total needs for petroleum products. Surveys are also being carried out for the construction of steel rolling mills with an annual productive capacity of 15,000 to 20,000 metric tons of structural steel. Iron scrap or imported steel ingots are to be used as raw material.

Supporting this and further industrial development, the first stage in the construction of the Danhim Dam in central Viet-Nam has been completed. Its initial capacity of 80,000 kW may eventually be raised to 400,000 kW. Finally at Thu-Duc, near Saigon, plans were prepared to start work on setting up a thermal power plant with a capacity of 33,000 kW.

The continuation of hostilities has made it difficult to achieve much success in the development of transportation: nevertheless some new trunk and access roads have been built and the railway system is being modernized. Air passenger and transport services have been expanded and improved to provide better links between the provinces and Saigon.

The machinery of government and planning

Before the coup in November 1963 a *Direction Générale du Plan*, which was an autonomous agency of the Office of the President of the Republic, was in charge of economic planning. With the help of the various ministries, it was responsible for establishing both the First Five-Year Plan, 1957-61 (not published and mainly an indicative effort) and the Second Five-Year Plan, 1962-66. At present, it is not clear how and through what bodies economic planning and the co-ordination of its implementation will be carried out.

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[1] At $1 = 74 piastres.

[2] Economic and Financial Planning Division, USOM, *Studies in Vietnamese Economy*, Vol. I, pp. 68-74 (Saigon, 1964).

A series of constitutional and governmental changes took place in 1964 before the authority of the Military Revolutionary Council was replaced in November by a temporary government composed of technicians and high-ranking civil servants which was to foster the establishment of a Provisional National Assembly which would endow the country with permanent institutions. But in the following June, the newly formed National Legislative Council was, through a political deadlock, obliged to return all powers to the Army—less than a month after the dissolution of the Council of Armed Forces. The generals undertook to draft a new provisional charter and to prepare a new régime.

Some general implications of development plans

Apart from the uncertain circumstances created by continuing hostilities within the country and the distorting influence of a heavy military commitment on types and quantities of future manpower requirements, the Second Five-Year Plan, 1962-66, is so tentative that it lends itself to no more than very rough generalizations on qualitative implications. It is also reported that the more detailed sectoral projects of the plan are under review and new annual plans for 1965 and 1966 were being set up, especially since the escalation of hostilities during 1964 had retarded development in the agricultural sector.

The plan itself envisaged that during its first two years purely economic considerations would have to give way to military objectives, and that economic and social development in this interim period would have to be geared to increasing the war potential and consolidating military successes. It was only after this had been achieved that economic problems could be expected to regain their proper priority.

With the obvious limitations that this situation imposes—which has deteriorated rather than improved since the adoption of the plan—the main economic objectives may be summarized as follows:

1. The economy needs to be modernized and diversified to achieve stability and eventual economic independence and to make effective use of a growing labour force: diversification through progressive industrialization; diversification of agriculture to avoid the risks inherent in two dominant cultures, rice and rubber; modernization to improve low productivity in many fields of activity. The ultimate objective, as in all plans, is the improvement of the standard of living in a democratic society.

2. A 5 per cent annual rate of economic growth was considered feasible on the basis of performance in the previous five years, which, with a population increasing at an annual rate of 2.5 to 3 per cent, would make it possible to achieve a consistent rise in *per capita* income and consumption.[1]

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[1] The Unesco team, basing itself on more recent data, made projections for GNP growth to 1980 on the basis of minimum, medium and maximum growth rates of 2, 3 and 4 per cent.

3. Recognizing that over-all *per capita* levels of consumption cannot be substantially improved in the immediate future, efforts to reduce the cost of living are to continue and special attention is to be given to improving rural living conditions through programmes for safeguarding the income of farmers; the development of education and rural health; and the improvement of housing and local communications.

4. Equal importance is given to the development of agriculture and industry, as it is felt that accelerated industrial advance accompanied by slow agricultural progress is bound to lead to disaster.

5. Problems of the imbalance of production and national expenditure, consequent heavy dependence on foreign aid, and balance of payment difficulties, are to be progressively met through expansion of primary exports—more than doubling agricultural exports in the plan period; improvement of the tax system and tax collection, in particular income tax, which incidentally is regarded as a proper instrument for the achievement of social justice; and the substitution of local products for consumer and certain other goods, e.g., fertilizer and cement as well as processed foods and textiles.

6. The problem of employment, and in particular under-employment, is given high priority. Plan estimates of total[1] manpower deployment place 76.5 per cent of it in the primary sector (mainly agriculture), 8.8 per cent in the secondary, and 14.7 in the tertiary sector. It is concluded that the tertiary sector is nearly saturated; that the secondary, even with a high annual rate of growth, will not be in a position to absorb more than a small proportion of the expanding labour force; and that therefore a major share of it will have to be found employment in the agricultural sector, which in turn can do so only with the restoration of security and the development of strategic hamlets.

7. Continuing the policy of regional development for social and political as well as economic reasons, and in order to reduce the pressures of growing over-population in Saigon-Cholon, the following types of measures have been proposed: the creation of industrial complexes; large irrigation and flood control schemes; the integration of agricultural and industrial development wherever they can complement each other; special programmes for under-developed provinces and for establishing and assisting strategic hamlets.

8. While lack of data made it impossible to prepare budgets for financing the plan as a whole and other proposals on financing are largely limited to costing specific projects in various sectors and to indicating possible sources of income from outside as well as within Viet-Nam, the policy of investment emphasizes the maximum mobilization of internal resources, the creation of favourable conditions for the influx of foreign capital, and the avoidance of duplication of effort and consequent wastage.

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[1] Other estimates usually refer only to the civilian labour force and place 88 per cent of it in the agricultural sector.

9. In the public sector, some $700 million,[1] including foreign aid, is to be invested over the Five-Year Plan period. Of this amount well over half, about $367 million, is set aside for the development of public utilities and an economic infrastructure, including irrigation, electricity, and flood control. On the whole, projects for government investment are those which are not likely to arouse the interest of the private sector, which will provide a basis for other developments, and which will increase employment opportunities.

10. While the private sector is expected to play a major role in the achievement of plan objectives and no limit is set to its activities, it has been found impossible to form any estimate of its scale.

Whatever reservations may be held with regard to the capacity of a modernizing agricultural sector providing employment for an increasing rather than a decreasing labour force, it is clear that the plan's implications for higher education are based first on its contributions of high-level manpower, research and extension work in the fields of agricultural, rural and community development. This of course does not only mean the production of agriculturists and irrigation engineers, but also a body of graduates able to function as senior administrators, civil engineers, doctors, teachers and other development personnel. It means too, that research should not be compartmentalized, and in particular that, in addition to supporting the growth of agricultural diversification and productivity, it must also help to facilitate the industrial utilization of various agricultural products.

The importance given to industrialization, while it may not in the immediate future involve large demands for an increased number of graduate engineers, does again emphasize the need for high-quality personnel and the development of appropriate applied research.

THE EDUCATIONAL SYSTEM

The pattern of the educational system current in 1963/64 comprised:

1. Five years of primary school (preceded by some, mainly private, provision for one kindergarten year) followed, in certain cases, by a supplementary year, including courses in applied arts or apprenticeship. A large number of rural schools, however, only offer a three-year course.
2. Seven years of secondary school, divided into a first cycle of four years and a second of three years (two in the case of training courses in law and navigation). Both cycles may be terminal as well as preparatory, and include separate general, technical, craft, agriculture and forestry, fine arts and music courses. The second cycle is itself divided into two parts:

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[1] At $1 = 60 piastres. The total of sectoral investment plans actually comes to the somewhat higher figure of about $767 million.

the first of two years leading to the first *baccalauréat*[1] in academic or technical fields, and the second of one year to the full *baccalauréat*.

3. Higher education extending over a minimum of four to five years, with the exception of three-year courses in law and sinology, six years in architecture, and seven in medicine. Admission to higher education normally requires the completion of the second cycle of secondary education, with the full *baccalauréat*.

The major structural development since 1949/50 has been a great increase and diversification in the provision for technical and vocational education at the secondary and higher level. Where formerly there had been only three- to four-year lower secondary technical and vocational education, a one-year accelerated course for teacher training after the first cycle, and a second cycle course in fine arts, there are now five types of technical and vocational courses in the first cycle, twelve in the second, and entry to teacher training is possible either after the first cycle or on completion of the first division of the second cycle (first part of the *baccalauréat*). At the higher level, provisions for general and technical teacher training, two technical schools, one agricultural school, an institute for public administration and a higher course in fine arts have been added to an original civil engineering school.

The Ministry of Education is in charge of organizing and planning the development of nearly all aspects of education—including, since 1962, agricultural education. The only exceptions are the National Institute of Administration, directly under the Office of the Head of the State, the schools for medical assistants, under the Ministry of Health, and the military academies. Within the ministry, the division of responsibilities was so dispersed that co-ordinated study, planning and implementation were difficult, and the 1963 Unesco mission to Viet-Nam, noting the planning difficulties inevitable with the diffused nature of the ministry's organization, recommended the setting-up of an effective Bureau of Studies and Planning to co-ordinate the various promotional and statistical services scattered throughout a multiplicity of departments and offices.

In November 1965 the ministry's organization was completely overhauled and reconstituted on a much more centralized basis on the following pattern:

Central bodies. (a) The Minister's Office, in charge of a director, assisted by a *chef de cabinet* and a secretariat; (b) a Central Secretariat, directed by a secretary-general and his deputy.

Departments and services. Eight departments responsible respectively for: higher, secondary, and primary and community education; private schools; teacher training and adult education; agriculture, forestry and veterinary sciences; inspection and examinations; studies and planning.

Attached bodies. Including the offices of the University of Saigon and Hué

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[1] In December 1965, the government, following the French example, decided to abolish the examination for the first part of the *baccalauréat*.

TABLE 3. Public and private school enrolment by level, 1963/64

Level	Public	Private	Total	Private as percentage of total	
Primary					
1-3	952 925	226 502	1 179 427	19	18
4-5+[1]	339 200	56 052	395 252	14	
Secondary					
6-9	80 034	151 011	231 045	65	62
10-12	32 572	32 076	64 648	50	
Secondary technical/vocational	7 588	—	7 588		
TOTAL	1 412 319	465 641	1 877 960	25	

1. Includes a small enrolment in special post-primary classes.

(rectoral and faculty offices); the National Technical Centre and its institutes; the National Centre for Scientific Research and the Oceanographic Institute; the Atomic Energy Office, and finally, an Educational Materials Service.

At the provincial level, the Education Ministry appoints education officers for primary education to each of the 44 provinces, but the authority for decisions is highly centralized.

In 1962/63 there were only some 60 primary school inspectors for about 27,000 teachers and 6,200 schools, and many of these were not fully qualified.[1] The Unesco mission suggested that their number be increased at least fourfold, and that their training should include adequate experience in educational research.[2] At the secondary level, there were only 11 inspectors for some 121 public schools with over 2,000 teachers.

Both primary and secondary education is free in public schools, but at the secondary level there is competition for entrance and a certain minimum average of marks must be maintained if studies are to be continued. Fee-charging private schools include some, confined to general education, which receive government subsidies and are known as 'semi-public'.

In 1963/64, about 25 per cent of all pupils at primary and secondary levels, including technical/vocational courses, were in private schools. These schools accounted for only 18 per cent of the enrolment at the primary stage; but at the secondary stage, excluding technical/vocational education, for 62 per cent of total enrolment. At the kindergarten level, private schools out-

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[1] Counting administrators as well as inspectors, the plan (p. 215) indicates a total of 148, amounting to one inspector or administrator for 9,242 pupils.

[2] In present circumstances at least, this may well prove too ambitious a requirement.

TABLE 4. Increases in enrolment by level, 1955/56 to 1963/64

Level and type (grades)	Enrolment		Indices for 1963/64 (1955/56 = 100)
	1955/56	1963/64	
Primary (1-5+)	601 862	1 544 679	257
Secondary general (6-12)	53 501	295 693	553
Higher technical (13-16)	227[1]	493	217
University (13-16+)	2 907	20 355	700
	1960/61	1963/64	Indices for 1963/64 (1960/61 = 100)
Secondary technical/ vocational (6-12):			
Technical	3 867	5 466	141
Teacher training	1 390	2 122	153

[1] Probably includes some secondary-level enrolments at the technical colleges.

numbered public ones by only 11 to 9 but had about three times as many classes and accounted for over three-fourths of the enrolment. Actual figures for primary and secondary education are given in Table 3.

Table 4 shows a rapid increase in enrolments between 1955/56 and 1963/64 at all levels but particularly at the secondary and university levels.

Vietnamese is the main medium of instruction at all levels, though a few special schools at the primary level provide for teaching in a vernacular, French or Chinese and at the secondary level in French or Chinese. At the higher level, some teaching, e.g., in medicine, science, and technical subjects, is done in French and occasionally in English. Both French and English are taught as second languages—a choice of one in the first cycle of secondary education, both in the second. A graduate of secondary education is supposed to be fully competent in the use of at least one second language, and able to follow texts in the other. However, inadequacies in this respect remain a major problem in higher education, particularly in courses where lectures are given in French or English.

Primary education

While education in public institutions is free up to the end of the secondary level, and increasing efforts have been made to universalize primary education, it is not yet compulsory. Annual percentage increases in primary enrolment have shown a significant upward trend from 1960/61 when it was about 2.3 per cent, to 7.5 per cent for 1962/63. Since 1955/56 enrolments have increased by more than two and a half times, and the percentage of the school-age population in school from about 33 per cent to over 70 per cent in 1963/64.

The full nation-wide primary school programme—in which modifications are under consideration—covers five years. In certain schools there is an additional post-primary certificate year with apprenticeship or domestic science courses: in 1963/64 only 14,844 pupils were enrolled in such classes. On the other hand, there are a large number of schools, particularly in rural areas, which have classes only up to the third grade and are called elementary schools: in 1963/64 there were 4,127 of the latter as against 2,401 complete primary schools, and a total of 23,705 classes for the first three grades as against 7,886 for grades 4-5 plus 266 for post-primary certificates.

While efforts are under way to upgrade all elementary schools, the present situation both reflects and contributes to high wastage and drop-out rates. Since 1956 more and more of the primary entry have failed to reach grade 5: of the 1956 entry, 49 per cent dropped out; of the 1958 and 1959 entry, about 60 per cent. The drop-out between grades 3 and 4, however, with some fluctuations in between, remains about the same in 1963/64 as in 1956/57, around 33 per cent. Undoubtedly a number of these apparent drop-outs occur because many rural children just do not have the opportunity to go on to higher primary grades within their area. Furthermore, apart from a substantial number exempted from final primary examinations, between 1959/60 and 1961/62 only 60 to 74 per cent of the candidates passed.

Although the number of under-qualified teachers dropped between 1957 and 1963 from 70 to 60 per cent, teacher/pupil ratios continued to deteriorate steadily from 1955/56 to 1963/64, from 1:53 to 1:60. The shortage of teachers is also shown by the fact that, in 1963/64, as against 31,851 primary classes there were a total of only 27,519 teachers—which even on a one-to-one ratio, amounted to a deficiency of 4,332 (which, incidentally, in 1957/58 was considerably less, i.e., 2,646). All the evidence shows that crude enrolments have increased far beyond teaching facilities. And while the number of primary school certificate holders has been increased substantially, the number of those actually passing primary finals has increased by only about 3 per cent per year between 1959/60 and 1961/62. The apparent improvement in efficiency thus obviously stems from the increased number of those exempted from the finals.

Secondary education

General. General secondary enrolments between 1955/56 and 1963/64 increased by well over five times, with particularly large annual gains up to 1961. During the same time the number of schools about quadrupled, the student/class ratio rising from 48 to 56, and the student/teacher ratio from about 28 to 34. In 1963/64 a total of about 13 per cent of the relevant age-group was enrolled in secondary education, the percentage for boys being 17, for girls 9.[1]

Taking the relevant cohort of enrolments, in 1963/64 of the total entrants 79 per cent reached grade 9 but only about 34 per cent reached grade 12. Of those in grade 9 only about 36 per cent passed the *brevet* examinations.[2] The second big drop comes between grades 11 and 12 (where the 1963/64 enrolment in the latter represented only 46 per cent of the 1962/63 enrolment in the former), and 1960/61 examination results for the first *baccalauréat* show a pass percentage of only 35.5. For the second *baccalauréat*, the pass rate was just over 54 per cent and remained at about this level in 1961/62.

Since the first cycle is terminal for many purposes and the first *baccalauréat* is a useful qualification for employment, the major wastage problem is that of repetition and high failure rates in final examinations.

This situation is at least partly due to the shortage of classrooms and the inadequacy of educational equipment, which obliges many schools to work in two shifts. In 1963/64 the pupil/class ratios in public schools was 54:1 and in private schools 56:1. The pupil/teacher ratios on the whole do not appear to be so inadequate—34:1 in 1963/64—but there are a large number of part-time and under-qualified teachers (about 39 per cent in public schools), and the over-all pupil/teacher ratio hides the fact that in public schools this in 1963/64 stood as high as 53:1, against 27:1 for private schools. The reasons for the significantly lower private ratio is not clear, though it may well be that this includes a larger number of part-time and under-qualified teachers. Apart from the fact that the output of teachers has not kept pace with expanding requirements, the shortage of secondary teachers in recent years has also been due to the fact that many have been drafted as army officers.

Of the total enrolment in the second cycle, which has three sections —experimental sciences, mathematics and physics, and letters—the overwhelming majority is found in the first two sections; the respective rough percentages for 1963/64 were 34, 58 and only 8 for letters. In the same year, the actual enrolments for these sections by types of institution were as shown in Table 5.

A number of the graduates of the first two sections try to enter technological courses as well as the scientific and medical faculties of the universities.

The percentage of girl students for the full range of secondary education is below that of 41 per cent for primary education in 1963, and it has remained fairly constant at 33 per cent from 1956 to 1963.

Vocational and technical. In comparison with general secondary enrolment, that of the more recently developed secondary vocational and technical

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[1] Corresponding percentages for the first and second cycles were respectively: 16, 21, 12; and 7, 10, 5.

[2] Now, like the first part of the *baccalauréat*, abandoned.

TABLE 5. Distribution of enrolments in the second cycle of secondary education, 1963/64

Type of institution	Experimental science	Mathematics and physics	Letters
Public	11 703	18 193	2 676
Private	8 146	15 492	2 359
Semi-public	1 237	2 381	—[1]
TOTAL	21 086	36 066	5 035

[1] Apparently none of the aided private schools has an arts section.

institutions is very small, amounting in 1963/64 to only 6,494, including 1,028 in decorative arts, music, and dramatic arts. Nevertheless, growth has been very rapid since 1954/55 when there were only 7 vocational schools with a total enrolment of 1,056. In 1963/64 there were 22, and the enrolment had risen by well over six times. The pattern of levels of education largely follows that of the academic secondary schools: a first cycle of four years is divided into two general 'orientation' years and two introducing technical or vocational education and training; a second cycle leads either to the *baccalauréat* Part I and II or to an *agent technique* diploma. The second is basically a terminal qualification, whereas the first is the normal preparatory education for entry to higher technical education. Competitive entrance examinations are held for each cycle and school, and recently the number of applicants has far exceeded admissions to available places—ratios ranging from 10:1 to 20:1. The type of institution and first- and second-cycle enrolments in these are given in Table 6.

It will be noticed that about 65 per cent of the total technical enrolment is in the first cycle, and while in a transitional stage this is to be expected, it is presumed that efforts will be directed toward concentrating secondary technical education in the second cycle. For the moment, however, one must welcome the fact that in most first-cycle technical courses, at least the first two years are devoted to basic general education in the arts and sciences.

The graduate to enrolment ratios are high, approaching 100 per cent, in the *agent technique* category and the specialized vocational schools; but in over-all secondary technical education pass rates are comparatively low: in 1961/62, of candidates appearing for the first-cycle *brevet* only about 50 per cent passed, for the first part of the *baccalauréat* 51 per cent, for the second part of the *baccalauréat* 66 per cent. Since entrance is competitive in all cases and pupil/teacher ratios generally seem to be reasonable, there is no obvious reason for this substantial difference. It is, however, to be suspected that in the first instance selection is more careful and that educational facilities,

TABLE 6. Enrolments in secondary technical/vocational schools,[1] 1963/64

Schools	Number	First cycle (grades 6-9)	Second cycle (grades 10-12)	Total
Technical	8[2]	3 266	553	3 819
Applied arts	2	346	—	346
Navigation	1[3]	—	60[4]	60
Commerce	1	—	130	130
Polytechnic	1	—	222	222
Decorative arts	1	210	—[5]	210
Music and drama	2	—	818	818
Agent technique sections				
Civil engineering	1	—	129	129
Chemical engineering	1	—	58	58
Electrical engineering	1	—	111	111
Agriculture, forestry and veterinary science	3	393	198	591
TOTAL	22	4 215	2 279	6 494[6]

1. Does not include Ministry of Public Health courses for medical assistants, from which the output in 1961 amounted to 364.
2. In this year only two of the schools had second-cycle courses.
3. Two sections: one for pilot officers and the other for mechanics.
4. Two-year second-cycle courses.
5. The second cycle has a fourth year and is considered part of higher education, with which music and drama is also at times added, e.g., in the general report statistics.
6. Women students form less than 9 per cent of this total and most of them are enrolled in music and drama (360) and commerce (51).

including qualified teachers, are superior, particularly as they also encompass higher levels of technical education.

In technical/vocational secondary education the over-all pupil/teacher ratio —excluding the decorative arts, music and drama—was around 8:1 in 1963/64. But this very favourable ratio hides two facts: first, a large number of the teachers are part-time; second, only about one-third of a total of 687 are fully qualified. Conscious of its shortage of qualified teachers for secondary technical education, Viet-Nam in January 1963 opened a Technical Education Teacher-Training Centre with a first total admission of 50 students (see p. 256).

Teacher training. In recent years teacher training at the secondary level has developed with extraordinary rapidity from very small beginnings. In 1950/51 there was an enrolment of only 63 in a one-year second-cycle (grade 10) course to train teachers for primary schools; by 1954/55 it was 243 in a four-year post-primary school (grades 6-9; 203) and a one-year accelerated

TABLE 7. Secondary teacher-training students and teachers in 1963/64

Institution	Number	Classes	Students			Teachers	
			First year	Second year	Total	Total	Student/ teacher ratio
Normal schools	3	40	(grade 12) 992	(grade 13) 953	1 945	37	53
Normal school for teachers of community education	1	2	(grade 10) 103	—	103	4	26
Normal school for teachers of Montagnard schools[1]	1	2	(grade 8) 50	(grade 9) 24	74	5	15
TOTAL	5	44	1 145	977	2 122	46[2]	46

1. Enrolments for the first two years (grades 6-7) of the four-year post-primary course are apparently provided in other schools.
2. Some 50 per cent of these are estimated to be part-time.

course as before (40); by 1960/61, 1,390 in four institutions, nine accelerated courses in various parts of the country, and one special course for agricultural monitors. The number of diploma holders in teacher training increased from 63 in 1950/51 (of whom nearly 50 per cent were women) to 1,139 in 1963/64 (of whom only about 25 per cent were women), the total number of graduates in the whole thirteen-year period being 8,546. The 1963/64 position of enrolments and teachers in secondary teacher training is shown in Table 7.

Despite the fact that there seems to be hardly any wastage at this level of teacher training (perhaps as much due to urgent demands as careful selection of one entry from five to twenty candidates), the main area of teacher training still shows a very serious shortage of teachers, which, until it is remedied, will inevitably affect the quality of teaching at the primary level.

Meanwhile, improvements in the organization, curricula and quality of secondary teacher training are under consideration, and include the possibilities of a higher entrance requirement (the full *baccalauréat*) or a longer duration of study and training, particularly practice teaching. On the other hand, to provide teachers for the programme of expanding primary education facilities in 'strategic hamlets', the Ministry of Education in May 1963 set up machinery for two-month accelerated training sessions followed by one month of supervised teaching practice in an elementary school near the student-teacher's hamlet. In 1963 this scheme called for the training of 880 primary teachers and 380 headmasters.

THE EDUCATIONAL PYRAMID

As in other developing countries, a broad initial educational base begins to taper sharply even within primary education (see Table 8). This is not only due to the fact of recent rapid expansion, but also to heavy drop-outs between grades 1 and 2 and a situation in which many rural areas still have no more than a three-year elementary course. Determined efforts to improve circumstances are limited by a shortage of teachers even more than of classes, while insecurity takes its own toll. For the few who enter secondary education —about 55 per cent of the grade 5 enrolment in 1962/63—the retention rate appears to be fairly good in the first cycle, but the pass rates in the finals continue to be low. In the second cycle there seems to be a particularly high repeater rate in grade 11 of the private schools, and there is a big drop-out between grades 11 and 12. Even then, of the 34 per cent of the secondary-school entry reaching grade 12, recent pass rates for the second *baccalauréat* have been around only 50 per cent. This means that approximately no more than 17 per cent of those entering secondary schools successfully complete the full second cycle of secondary education.

The first year, and indeed the total university enrolment, give an exaggerated picture of the real situation because : (a) a large proportion of students are repeaters, particularly in the first year; (b) there are many duplicate registrations in two or more faculties, roughly estimated at anywhere between 10 and 20 per cent of total enrolment. It is also to be stressed that more than half the total enrolment is in the first year, though women students, despite a very rapid increase in their recent enrolments, show a slightly better distribution.

The provision for technical/vocational and teacher training is small, but considerable emphasis has been given to its development and its recent expansion has been spectacular.

Finally, it is to be observed that the proportion of female students drops markedly with each succeeding level of education, particularly from grades 1-3, where in 1963/64 it was 43 per cent, to grades 4-5 (37 per cent), and from the second cycle of general secondary education (30 per cent) to the university (22 per cent). In technical/vocational education their enrolment is nominal; and even in secondary and higher teacher training their enrolment forms less than 20 per cent of the total.

HIGHER EDUCATION

STRUCTURE, ORGANIZATION AND ADMINISTRATION

While in name higher education in Viet-Nam dates back to 1070-75 when the Van-Miéu (Temple of Literature) and the first Quôc-tú-giám (National College) were established, after the institution of competitive examinations for

TABLE 8. Enrolments by grades, 1963/64[1] (public and private)

Grades	General		Technical/vocational[2]		Teacher training		Grand totals
	Total	Female	Total	Female	Total	Female	
Primary							
1	522 065	227 277					
2	363 253	155 984					
3	294 109	119 955					
Sub-total 1-3	1 179 427	503 216					1 179 427
Primary							
4	208 959	79 751					
5+1	186 293	68 285					
Sub-total 4-5+	395 252	148 036					395 252
Secondary							
6	83 273	29 463	1 298	7			84 571
7	60 323	21 167	1 194	10			61 517
8	45 953	16 296	904	42	50	5	46 907
9	41 496	14 393	902	110	24	—	42 422
Sub-total 6-9	231 045	81 319	4 298	169	74	5	235 417
Secondary							
10	25 188	8 388	956[3]	79	103	40	26 247
11	26 061	7 596	480[3]	70			26 541
12	10 938	2 804	516	40	992	203	12 446
13					953	173	953
Sub-total 10-12+	62 187	18 788	1 952	189	2 048	416	66 187

	13	10 596[5]	1 960	495[6]	24	519	105	10 941[7]
University[4]	14	9 759[8]	2 421	264[6]	6	416	74	10 227[7]
(grades 13-18+)	15			250[9]	7	294	56	
and	16			59[9]	—			
Other higher education	17			4	—			
(grades 13-16)	18+			17	—			
Sub-total 13-18+		20 355	4 381	1 089	37	1 229	235	21 168[7]

1. Students of the second cycle of French schools and schools with French programmes are not included (2,461).
2. Enrolments include commerce, fine arts, public administration, agriculture and architecture, but not music and drama for whose 818 students no grade breakdown was available.
3. Includes secondary diploma courses in law given at the university.
4. University enrolments in first-degree or diploma courses under 'general' give totals for the first year and for the rest, but breakdowns by grades are also included for architecture under technical/vocational and for teacher training under that heading. The overlap is removed from the grand total. Excluded are secondary enrolments at the university in law and architecture which are counted under the relevant grades. For further details on university and other higher education enrolments, see pp. 233-44 and the main fields of study.
5. Total of all grade 13, that is first-year enrolments at the university.
6. Includes public administration and architecture, but not law, medicine, pharmacy, and teacher training.
7. The totals in the preceding columns do not add up to these as the data for universities is duplicated under general and other heads.
8. Total of all enrolments beyond grade 13.
9. These figures refer only to architecture.

the Mandarin civil service system, the roots of the present system of higher education are to be traced back no farther than 1907. Nevertheless in the past, knowledge and scholarship were regarded as the highest virtues, not merely as a means to power or administrative eminence; at the beginning of the nineteenth century two national colleges were admitting able students from among the people as well as the aristocracy; and despite its rhetorical emphasis, a classical education did produce cultivated men and able administrators. However, the sciences and technology were neglected, though as far back as the early fifteenth century critics had pointed out that there was too much rhetoric and not enough practice, and mathematics was at one stage introduced as a major subject in competitive examinations. The last examination based on the traditional Vietnamese Mandarin system was held in 1918.

At the beginning of the twentieth century, the French governor, General Paul Beau, established a General Directorate for Public Education and a westernized process of training selected candidates for clerical positions in the colonial administration. When a 'university' was first set up at Hanoi in 1907 it was little more than a vocational school, but by 1917 it was formally inaugurated as the Université Indochinoise and comprised schools of medicine and pharmacy, law and administration, education, agriculture and forestry, public works and commerce. A school of fine arts was added in 1924; but it was not until 1941 that a school of science was included—and at this time too, Vietnamese were for the first time admitted to teaching positions. Intended to serve all of Indo-China, in 1939 it had a total enrolment of only 700, which ten years later was still less than 1,000. In 1947, as a result of political factors, the school of law separated from the university and shifted to Saigon; and following the 1954 Geneva Agreement, the entire university was reconstituted in Saigon in temporary premises scattered all over the city. Known for a short while as the Université Mixte Franco-Vietnamienne, in 1955 it became fully Vietnamese with a Vietnamese rector, and was called the National University of Viet-Nam until 1957, when the second State university was established in Hué. A third privately endowed, but government-aided, university was set up at Dalat in 1958 under Catholic sponsorship. Finally, the Buddhist university of Van-Hanh was officially established in 1964.

Five other institutions for higher technical and vocational education were also founded between 1952 and 1957. Since 1962, with the exception of the National Institute of Administration (NIA), all the others have been brought under the centralized authority of the National Technical Centre, set up by presidential decree in 1957.

The three State universities and the National Technical Centre are directly responsible to the Minister of Education. There is no intervening agency to promote, let alone ensure, adequate consultation. On the other hand, in line with the pattern of the French system, faculties also have a considerable degree of autonomy: the Vietnamese compromise between this autonomy and the goal of centralization leads to situations in which, while university budgets are based on individual faculty requirements, the latter apparently do not have their own budgets—thus each small purchase is, at least formally, referred from department to faculty, from faculty to rector, and approved by the Minister before action is taken—and even then, or rather precisely because of such procedure, there is no rational mechanism to help determine priorities.

At the moment, little contribution to co-ordination is derived, even for research programmes, from the National Centre of Scientific Research established in 1962; but in the future it could render substantial services, especially if it maintained a twofold relationship with universities on the one hand, and a co-ordinating government agency for higher education on the other. Its stated purposes are 'to act as a National Research Council in co-ordinating, stimulating, and helping scientific research work in the whole country and to build up and manage new research institutes created according to the national need of the country'. At present, the centre does not cover the social sciences, and apart from some reliance on the services of university staff, its only direct link with the university appears to be that the chemistry and botany laboratories of its Institute of Natural Substances are located at the Saigon Faculty of Sciences. But the opportunity remains, particularly in the much-needed development of scientific research in universities.

The operation of individual institutions of higher education is supervised by a rector, appointed by the head of the government, who is assisted by a council, including representation from each faculty. The dean of a faculty is appointed by the Minister of Education, upon the recommendation of the faculty council concerned. All staff of the universities and other institutions of higher education are civil servants, though in most cases their appointments are made on the basis of appropriate academic recommendations. The rector is also assisted by a secretary-general, particularly in administrative matters.

General admission policies and procedures

Until recently, the second part of the *baccalauréat* was in general accepted as entitling the holder to higher education. The exceptions, due to limitation of places and facilities, were higher teacher training and technical education. In these cases, competitive entrance examinations did and do select a limited number of candidates. Both progress from grade to grade and the results of final examinations in these two fields show that wastage has been negligible.

The faculties of medicine, worried by wastage, particularly in the initial years, recently introduced competitive entrance examinations, and results for the very first year showed remarkable improvements (see Table 9).

Despite difficulties of estimating wastage rates for the propaedeutic first year in the arts and sciences, because there is an unknown percentage of

TABLE 9. Admissions and pre-medical examination results, 1961/62 and 1962/63

Academic year	Enrolment at beginning of academic year in preparatory course[1]	Candidates for first-year examinations	Passes	
			No.	%
1961/62 (before selection)	1 260	578	109	18.9
1962/63 (after selection)	200	193	143	74.1

1. Physics, chemistry, biology (PCB) or pre-medical year including these subjects within a wider syllabus in 1962/63.

students who fail to present themselves for examinations, it seems that no more than 50 per cent of the candidates appearing pass (incidentally, this estimate is about the same as for France). The failure rate in science is much higher than in arts: for 1959/60 and 1961/62, while the combined failure rate was about 57 and 52 per cent, for science it was 66 and 63 per cent, for arts less than 33 and 23 per cent. The cost implications of this are clearly considerable. In its report to the Twenty-Sixth International Conference of Public Education (Geneva, 1963) Viet-Nam stated that, 'owing to the ever-increasing number of high-school graduates, the necessity for a more rational orientation of students in order to avoid an undue waste of time, energy and financial resources, becomes more acute every year'.[1]

Media of instruction

While, since 1961/62, Vietnamese has gradually replaced French as the main medium of instruction in higher education, an adequate knowledge of French or/and English continues to be essential because most textbooks and reference works are in these languages, and French is still used for most lectures in the science and medical faculties and in higher technical education. Gradual progress has been made in increasing the number of Vietnamese lectures in these fields, accompanied by efforts to standardize Vietnamese scientific and technical terms and to increase the output of Vietnamese science textbooks. Nevertheless, the continuing importance of an adequate command over at least one world language is fully recognized, and the Ministry of Education accordingly requires that each faculty or technical college should conduct a number of courses and seminars in French or English and that attendance at these should be compulsory.

[1] République du Vietnam, Département de l'Education Nationale, *Situation et progrès de l'enseignement au Vietnam au cours de l'année scolaire 1962-63*, p. 22 (Saigon, 1963).

The difficulty is that the time allowed for foreign language teaching in secondary schools is apparently insufficient to give the university entrant adequate command over even one foreign language. At the universities such few remedial courses as there are to deal with this problem are mainly for arts students and prospective teachers of languages. Efforts are being made to improve language teaching in secondary schools with a fuller and more adequate use of audio-visual techniques, assisted by studies and analyses of the South-East Asian Regional English Project Team of the University of Michigan. Proposals have also been made to set up intensive pre-university courses in foreign languages which would be specially tailored to the student's chosen field of study to give him a proper command over the use of its specialized vocabulary.

Sources of finance

With the exception of the University of Dalat, higher education is almost entirely financed by the State, since fees, where they are charged, are quite nominal. Proposals have, however, been made that, together with appropriate exemptions and increased scholarships, these should be substantially increased and that in the further development of higher education support should be sought from private industry and business. Very considerable assistance in finance as well as in kind (teachers, experts, equipment) is received from foreign sources, in particular the United States, which over an eight-year period from 1955 to 1963 provided a total of over $24.5 million[1] (in dollars and counterpart funds in local currency) for all levels of education. Of this, a considerable part—over $14 million—was made available for technical/professional, teacher training and higher education (a separate breakdown for higher education is not available).

THE INSTITUTIONS AND THE GROWTH OF HIGHER EDUCATION

A more detailed consideration of the work and output of institutions of higher education is given according to main fields of study following an over-all view of institutional scope and growth and of the development plans for the University of Saigon.

The *University of Saigon* has eight faculties: Letters (arts and social sciences); Law (including economics and an Institute of Comparative Law); Science; Medicine, Pharmacy, Dentistry (formerly these three formed one faculty, Dentistry becoming an independent faculty only in 1964); Education; Architecture (called École Supérieure). A new unified campus for the university is under construction at Thu-Duc, 14 kilometres from Saigon, which will add a number of new teaching and research divisions.

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[1] At $1 = 60 piastres.

The university's total enrolment in 1963/64 was 16,819[1] with about half the students in arts and law, and enrolments in arts and science about equal. While women formed less than 23 per cent of the total enrolment, they numbered about 50 per cent in pharmacy and 31 in arts, but only 20 per cent in education and very much less in other subjects.

For the moment, the university has no central library (a circumstance which will probably change when it moves to Thu-Duc), only faculty libraries with a rather modest number of volumes:[2] law 10,300, medicine and pharmacy 8,000, science 4,000, letters 16,000, education 9,000, and architecture 1,000.

The *Université of Hué* has an Institute of Sinology[3] in addition to five faculties: Letters, Law, Science, Education, Medicine (until 1964 only the premedical and first three years of medicine). In recent years, various faculties have advanced their development by completing arrangements for postgraduate studies.

In 1963/64 it had an enrolment of 3,092,[4] including less than 17 per cent women students, most of whom were in the faculties of Letters and Science.

The central library of the university has some 12,000 volumes and the Law Faculty library 3,000.

The *University of Dalat* in 1963 had three faculties: Letters, Science, Education; but in 1964 a Faculty of Political Science was added. Steps have been taken to discontinue the Faculty of Education in 1966.

In 1963/64 the enrolment of Dalat was 444,[5] of which nearly 25 per cent consisted of women students, most of whom were in the Faculty of Letters.

The *National Technical Centre* includes schools of Civil Engineering, Electricity, and Industrial Engineering.

The *School of Agriculture, Forestry and Veterinary Science* has been controlled by the Ministry of Education since 1963. These institutions have secondary sections as well.

Finally, there are two new schools: the *School of Chemistry* and the *School of Navigation*.

Recent plans for the future envisage setting up a national institute of technology as part of the University of Saigon (see pp. 249-50) and also propose that the National Technical Centre should ultimately confine itself to the education and training of technicians. The centre's enrolment in 1963/64 at

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[1] Reported to have risen sharply in 1964/65 to 19,069.

[2] Figures refer to 1960/61.

[3] Closed in 1965/66.

[4] Does not, on the pattern of over-all official statistics, include an enrolment of 194 in the Institute of Sinology, whose courses represent grades 10-14.

[5] In 1964/65, 1,515. Only the bare figure is available, not an explanation of the more than threefold increase in enrolments—surely not covered by the addition of one faculty.

TABLE 10. Third-level enrolment and staff by institutions, 1963/64

Institution	Enrolment	Staff	Student/ teacher ratio
Saigon	16 819	437[1]	38.5
Hué	3 092	158[2]	19.6
Dalat	444	70[3]	6.3
National Technical Centre	282	123[4]	2.3
School of Agriculture	211	25[5]	8.4
Administration	274	31[6]	8.8

1. 81 expatriate.
2. 31 expatriate.
3. Approximate.
4. Apparently only 9 are full-time Vietnamese teachers; there are 16 foreign professors.
5. Including 8 full-time Vietnamese teachers; there are 6 foreign professors.
6. Including 9 occasional lecturers, not excluded because in other cases too there are part-time teachers on whom clear data are not available.

the third level was 493, of whom no more than 15 were women students, all in agriculture.

The *National Institute of Administration* is designed to train administrators for the government. In 1963/64 it had an enrolment of 274 students in the regular three-year course; following the first common year, this is divided into divisions of (a) general administration, and (b) economics and finance. Evening adult education and specialized courses account for another 850 students.

Institutional enrolments and staff

The third-level enrolments and staff in the above-mentioned institutions are summarized in Table 10.

The seemingly high student/teacher ratio for Saigon University must in part be discounted by the noted exaggeration of enrolments (pp. 233-4); on the other hand, at Hué and Dalat there are probably a considerable number of part-time teachers. At the other institutions, even when allowance is made for part-time teaching, the quantitative provision at least seems to be comparatively reassuring.

The rapid increase in enrolments, staff and graduates for all these institutions as a whole is given in Table 11 for the ten-year period from 1953/54 to 1963/64.

A number of interesting features are to be observed in these data. University enrolments have in a ten-year period increased at an annual rate of about 25 per cent while in nine years the rate for technical education has been only around 6 per cent. Nevertheless, while the number of university

TABLE 11. Increase in enrolments, staff and graduates:[1] universities and technical colleges, 1953/54 to 1963/64

Year	Enrolments			Graduates			Staff		
	Universities	Technical colleges	Total	Universities	Technical colleges	Total	Universities	Technical colleges	Total
1953/54[2]	2 142	...		66					
1954/55	2 154	288	2 442	92	22	114			
1955/56	2 907	227	3 134	104	19	123			
1956/57	3 379	317	3 696	209	27	236			
1957/58[3]	4 445	418	4 863	263	28	291			
1958/59	6 872	360	7 232	448	19	467			
1959/60[4]	9 178	372	9 550	483	35	518			
1960/61	11 429	389	11 818	525	63	588	475[5]	104	579
1961/62	15 106	409	15 515	598	100	698[6]	548[5]	112	660
1962/63	17 419	419	17 838	...	100		590[5]	142	732
1963/64	20 355	493	20 848	...	...		688[5]	154	842

... Data not available.

1. *Licence* and university-level diplomas; both secondary and post-secondary diplomas are excluded. Enrolments in the National Institute of Administration, the Institute of Sinology (grades 10-14) and the academies of fine arts and music are not included.
2. Last year before Geneva Agreement; the enrolment and graduates include those of Hanoi.
3. From here on figures for Hué are included, but this in itself does not explain the big jump in enrolments and graduates between 1957/58 and 1958/59.
4. From this point figures for Dalat are included.
5. Does not include the staff of the Institute of Sinology, most of whom, incidentally, appear to be part-time.
6. Unlike the general report (Volume I of this study) this figure does not include 16 post-graduate diplomas in law and 43 diplomas in fine arts and music; but it does include the first output of 46 agriculture graduates.

graduates increased annually by only a little over 27 per cent, the number of technical graduates rose at nearly the same rate—a little less than 25 per cent. This means that, in terms of graduate output, technical education has consistently been far more efficient than university education. While proportionately there has been a fairly rapid improvement in university output under several heads (e.g., from two graduates in arts in 1954/55 to 71 in 1961/62) when this is seen in relation to enrolments it is not so encouraging (e.g., in 1961/62 an enrolment/graduate ratio of about 57: 1 in arts as against 7: 1 in technical education). Furthermore, while between 1960/61 and 1963/64 technical teaching staff has increased 48 per cent and university staff only 31 per cent, enrolments during this period rose enormously in the university: over 75 per cent, as against less than 27 per cent in technical education. In many ways a direct comparison between staff/student ratios in these two fields is not valid; but, since the qualifying factors are in each case largely constant over the period concerned, it appears that, under various pressures, in the university already low staff/student ratios have been allowed to deteriorate (from 1:24 to 1:30) while the high ones for technical education have been further improved.

Although it is clear that pressure for entry to higher education will probably continue at a similar rate, there is an urgent over-all need, in terms of both individuals and the nation, to reduce the extremely high enrolment/graduate ratio to reasonable limits, and at the same time to gear outputs in particular fields to relevant manpower requirements. The idea that enrolments in themselves provide a fair yardstick of educational progress is certainly in this case most doubtful; for it has been seen that the enrolment in technical subjects, which is only one-eighth of that in arts, has, over the same minimum required period of study, produced an equal number of graduates.[1]

Development plans for the University of Saigon

The plan to provide a unified campus for the University of Saigon at Thu-Duc, whose implementation, at least in terms of first priorities, is to be completed by 1972, involves much more than the provision of adequate premises for existing faculties. In addition to its existing branches, the university's transfer envisages the establishment of the following new teaching and research divisions: a faculty of economics and social sciences or institute of economics to be attached to the Faculty of Law; a national institute of

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1. The example of the arts and technical fields is chosen because in science there are a number of complicating factors, particularly since the first year of science is preparatory to a number of studies which have varying periods of minimum study requirements. Furthermore, the counter-argument that the value of certificates awarded must be taken into account is at best irrelevant: four to five holders of single certificates are no more equal to a graduate than four to five technicians are to an engineer, or an engineer who has filled only one-fourth of his requirements is to a technician.

technology; two applied research institutes: (a) for rural life; (b) for industrial development (under the sponsorship of the National Centre of Scientific Research established in 1962); a centre for statistical studies; a university museum of ethnology; a linguistic institute attached to the Faculty of Letters; an anthropological and sociological institute.[1]

But while all these items are of considerable interest and require some specific comment, perhaps the most interesting and important aspect of the total development is the clear emphasis on: (a) making the university the centre of both teaching and research, with adequate co-ordination between all its elements; (b) integrating higher technological education and research with a university that up till now would have nothing to do with them; (c) giving almost equal emphasis to economic, socio-rural and industrial factors in the setting up of institutes; (d) ensuring adequate co-operation between university and research institute.

Under the important general objective of co-ordination, it is planned, while retaining a considerable degree of autonomy for faculties and institutes: (a) to achieve a basic centralization, in particular for admissions to faculties, budgeting and accounting, and ancillary facilities like staff and student housing and general welfare; (b) to develop closer relations between different main fields of study, including a large number of common or interrelated courses for different faculties at various stages of higher education, but in particular for preparatory periods of study; (c) to develop interdisciplinary research, particularly through co-operation between the proposed institutes and faculties.

As against these eminently desirable aims, apart from questionable forecasts of likely enrolments in 1972 and estimates of costs of relevant expansion and operation, the main difficulty of the proposed developments lies in the apparently simple matter of transport. Out of a total enrolment of about 23,500 (perhaps not too heavily under-estimated, if multiple registrations and procrastinating students are excluded, which will, indeed be an aim of the centralized system of admissions and registration) only about 2,500 would find residential places on the campus. Thus 21,000 students would need to commute over at least 14 kilometres from the centre of Saigon: many of them from much further away. The provision and maintenance of adequate transportation would thus involve a major and costly operation. Even if it is assumed that only about half the total enrolment would need to rely on public transport (the rest either using their own means—involving nearly two hours per day back and forth and a drenching in the rainy season for those who do not possess cars—or not attending lectures on a given day), this at about 50 to a bus would mean at least a fleet of 200 per day. Arrangements by rail might be more satisfactory, but present their own problems. No more satisfactory solution has yet been found, and it is clear that the transfer will have to be a gradual and carefully planned operation.

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[1] Details regarding all but the last three establishments are to be found in *Mission d'étude des programmes d'investissements en matière d'éducation*, op. cit., pp. 127-70.

It is envisaged that the buildings and other facilities vacated in Saigon would be put at the disposal of the qualitative development of secondary education, particularly in its second cycle where it is quite desperately needed, especially in the scientific field; but the question remains as to whether in practice the University of Saigon will not need to maintain certain centres in Saigon, at least during the early years of the new campus.

THE POSITION IN THE MAIN FIELDS OF STUDY

Arts and social sciences

Admission to courses in this field, which includes law and public administration as well as letters, is open to all students who have completed twelve years of schooling and obtained the full *baccalauréat* qualification, and a competitive entrance examination is held only for public administration. Exceptions to the general admission requirements are presented by the academies of fine arts which admit students at the same level (generally from the junior schools of decorative arts) on four-year courses, and are accordingly only in part post-secondary.

Requirements for a first qualification vary somewhat between letters, law and administration. The first requires a minimum of four years of study, the second and third three years each. Furthermore, the first is not divided into grades or classes, but requires the completion of a number of courses, for each of which a *certificat* is awarded. A preparatory year includes basic courses in the humanities and consists of an average of twenty lecture hours per week, of which eight are devoted to the main chosen subject of study. After this, five interrelated but selected courses, each comprising ten to twelve lecture hours per week culminate in a final examination and *certificat de licence*. In letters and law, post-graduate diplomas may be awarded in particular fields of specialization, each requiring a minimum of one year's study and research. At least two such special studies must be completed and an original thesis presented for the award of a doctoral degree. At present such post-graduate work is very limited, but it is expected to expand.

The situation of enrolments, qualifications awarded, and staffing is, as far as data are available, indicated over the period 1954/55 to 1963/64 in Table 12.

While enrolments have in the nine-year period increased by nearly twelve times, the output of graduates has grown much more slowly and the graduate/enrolment ratio has deteriorated rather than improved, i.e., while one-tenth of the 1954/55 enrolment graduated in 1958/59, in 1961/62 only one-twelfth of the 1957/58 enrolment graduated. Similarly, while there has been

TABLE 12. Arts and social science enrolments, qualifications awarded and staff,[1] 1954/55 to 1963/64

Year	Enrolments	Qualifications awarded[2]	Staff	Staff/student ratio
1954/55	901	39		
1955/56	1 288	35		
1956/57	1 513	82		
1957/58	2 078	64		
1958/59	2 837	87	103	1 : 28
1959/60	4 116	108	125	1 : 33
1960/61	5 282	137	147	1 : 36
1961/62	6 804	168	154	1 : 44
1962/63	8 636	—	211	1 : 41
1963/64	10 254	—	227[3]	1 : 45

1. As data concerning fine arts and administration are incomplete and do not go much beyond what has already been indicated in the preceding chapter, no attempt has been made to incorporate these. Total enrolments thus left out each year between 1959/60 and 1963/64 range around 380 to 530. Also excluded is the Institute of Sinology which in 1963/64 had an enrolment of 76 students in its fourth and fifth years (grades 13-14).
2. Only the *Licence*: not included are *certificats de capacité de droit* which are secondary-level qualifications (grade 11), post-graduate diplomas in law, and *certificats de licence*.
3. Includes a rough estimate of 34 for Dalat.

a very considerable increase in staff, this has not kept pace with enrolments, and staff/student ratios have accordingly become worse, declining steadily from 1:28 to 1:45 between 1958/59 and 1963/64.

Apart from the obvious qualitative and cost implications of this situation —i.e., in terms of the cost of producing a graduate—the output also falls far short of estimated requirements. While the number of law graduates is considered nearly satisfactory, for arts and law together needs have been roughly estimated at around 500, whereas the output in 1961/62 was only 168. Whatever the validity of the estimate, which is largely a guess, taken as an order of magnitude requiring a tripling of 1961/62 output, it still suggests that what is needed most of all is not an increase in enrolments so much as an improvement of the efficiency of the system. Thus out of the 1963/64 enrolment of 10,000 only 5 per cent would need to graduate to meet the target of 500.

The new institute of economic and social sciences to be set up on the Thu-Duc campus should certainly promote comprehensive social studies, facilitate balanced outputs of graduates, and develop research in sectors of national life that are no less important than others whose needs are more easily quantified, e.g., medicine and agriculture. It should also, in contrast to the current Faculty of Law, advance interdisciplinary contacts and research between itself and faculties of law, letters, science, and, indeed, the total resources of the university.

Science and engineering

Science is taught at all three universities, architecture only at Saigon, and engineering at the three technical colleges of the National Technical Centre. Admission to all courses requires the full *baccalauréat,* usually from the appropriate scientific stream of secondary education, or, particularly for engineering, from technical secondary education. In the case of engineering, rigorous competitive entrance examinations are held: in 1963/64 under 8 per cent of the candidates—85 out of 1,078—were admitted.

Requirements for degrees and diplomas vary as follows:

1. *Licence ès science* requires the completion of a preparatory year in one of three combinations of science subjects[1] and three additional *certificats,* each of which need a minimum of one year's study, including about 320 hours of lecture and 192 hours of laboratory work. As in law, post-graduate studies of about one year lead to a higher diploma; and a minimum of three years' study and research, culminating in an original thesis, are required for a doctorate in mathematics, physics, or natural sciences.
2. Engineering diplomas are awarded after a minimum of four years' study, but proposals have been made to extend this to five years, including two years of basic general studies, two of specialization, and one of advanced specialization and training. (Also see p. 249.)
3. Diplomas in architecture have, since 1961, required a minimum of six years of study and training[2]—previously it had been five years.

Except for some recently developed facilities for research at the Saigon Faculty of Science, there are at present no provisions for post-graduate work in science and engineering within institutions of higher education. However, this lack is fully recognized and plans for the development of the new campus of the University of Saigon emphasize the research aspect of higher education, particularly in applied scientific fields. The need for such development is also borne out by the fact that apparently until 1963/64 the Saigon Faculty of Science had not awarded any doctorates,[3] between 1954/55 and 1960/61 had given only six post-graduate diplomas, and in 1963/64 one.

Table 13 gives data on enrolments, qualifications awarded, and teaching staff as far as possible for the full period of 1954/55 to 1963/64, including

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[1] General mathematics and physics (M.G.P.), mathematics, physics and chemistry (M.P.C.), and physics, chemistry and natural history (S.P.C.N.).

[2] Three-year diplomas in town planning and construction are at the secondary level, with entrance after the first cycle of secondary education.

[3] Two doctorates were awarded in 1965, and one in 1966—all in chemistry.

TABLE 13. Science and engineering enrolments, qualifications awarded and staff, 1954/55 to 1963/64

Year	Enrolments				Qualifications awarded[1]					Staff and staff/student ratios					
	Science	Engineering[2]	Architecture	Total	Science		Engineering	Architecture	Total (1), (2), (3)	Science		Engineering[3]		Architecture	
					P.C.B.	L				No.	Ratio	No.	Ratio	No.	Ratio
						(1)	(2)	(3)							
1954/55	489		27		137	1	22	0	23						
1955/56	679		25		106	4	19	1	24						
1956/57	769		27		135	9	27	1	37						
1957/58	1 075		46		200	11	28	3	42						
1958/59	2 017		73		239	24	19	4	47	57	1 : 35			18	1 : 4
1959/60	2 497		91		190	16	35	5	56	63	1 : 40			23	1 : 4
1960/61	3 160	225	106	3 491	251	21	63	4	88	98	1 : 32	104	1 : 2	24	1 : 4
1961/62	4 627	225	156[4]	5 008	—	33	54	—	—	110	1 : 42	112	1 : 2	25	1 : 6
1962/63	4 344	243	225	4 812	144	37	48	3	88	115	1 : 38	118	1 : 2	25	1 : 9
1963/64	5 121	282	276	5 679	—	71	50[5]	7	128	130	1 : 39	123	1 : 2	26	1 : 11

1. In addition to the *licence* and university-level diplomas (not including secondary and post-graduate ones), the P.C.B. (physics, chemistry, biology) pre-medical certificates are indicated separately because until 1962/63 it constituted an entrance qualification for the Faculty of Medicine.
2. Statistics for 1954/55 to 1959/60 enrolments clearly include the secondary as well as the higher level at technical colleges, and separate data are not available. These figures (rising from 288 in 1954/55 to 372 in 1959/60, with an unexplained spurt to 418 in 1957/58) are therefore not included in the table. (Also see following footnote.)
3. The engineering staff at the technical colleges provides instruction for secondary- as well as third-level students and includes a large number of part-time instructors. Thus the staff/student ratio is greatly exaggerated: taking total enrolment, it would come to about 1 : 5, and making a very rough allowance of four instructors (*chargés d'enseignement*) to one full-time teacher would further bring this down to about 1 : 12.
4. Estimate.
5. Estimate.

breakdowns for science, engineering, and architecture. Some striking contrasts emerge.

When allowance has been made for the P.C.B.s transferring to the Medical Faculty, the Science Faculty's output of graduates has still been remarkably small in relation to its enrolments, even if these are further reduced by 20 per cent to cover duplicate enrolments. The performance in engineering presents a sharp contrast to this: roughly, out of a 1961/62 enrolment of 225, the following year 48 (over 21 per cent) graduated as engineers, whereas corresponding enrolment and graduation figures for science are 4,627 and 37 (less than 1 per cent). Efforts have been in progress to remedy this situation, and between 1962/63 and 1963/64 the number of science graduates has been doubled; but obviously much remains to be done to assure a better utilization of available qualified human resources, by improving quality rather than by further expanding enrolments. The contrast between science and engineering is also reflected in staff/student ratios—for science in recent years this has been well over 1:35, whereas in engineering, even after making appropriate allowances (see footnote 3 to Table 13), it is at most around 1:12.

While the total number of graduates has risen fairly rapidly between 1954/55 and 1963/64 from 23 to 128, well over fivefold, during the same period enrolments increased more than tenfold. Furthermore, as against 71 science graduates in 1963/64, rough estimates place requirements in the neighbourhood of 300. As in the case of arts, there is in principle no reason why such a target should not be achieved with current enrolments.

The projected establishment of an institute for applied research in industrial development and of an institute of technology, as part of the National Scientific Research Centre, will primarily benefit engineering education and industrial research, but as they are to share the Thu-Duc site with a Faculty of Science and maintain full collaborative relationships with it, they can undoubtedly also support and stimulate improvements in the teaching of basic sciences and expansion of post-graduate work and research at the Faculty of Science (though the staff/student ratios proposed for 1972 may well make this development difficult—1:30 for total enrolment and 1:23 for effective full-time enrolment).

With regard to engineering education, industry complains that the technicians are of a low standard and cannot be put to work directly without further training, and that the engineers have too much of a practical technician orientation with insufficient basic grounding, so that, though they execute routine tasks well, they are not able to apply their knowledge and skills to novel situations.

It is in recognition of this situation that the Ministry of Education has proposed a five-year engineering course for the new institute, during the first two years of which it has been foreseen that basic scientific courses might be provided through co-operation between the institute and the Faculty of Science, making the most of joint resources of staff and laboratories. In other respects, too, the institute is to maintain close practical relationships with other divisions of the university, avoiding duplication of courses which can be as well, if not better, provided by the Faculty of Science, and sharing facilities for research. Furthermore, while the institute will offer five-year courses (including, after the first two years, two years of specialization in a main field, followed by a year's specialization in a particular branch of engineering), it is proposed that the existing Saigon Technical Centre should in future provide two-year post-secondary technical education and training, thus limiting the centre to the production of second-level technical manpower.

The institute of technology, which is expected to have an enrolment of nearly 1,200 in 1972, is planned as a number of centralized facilities and four departments: industrial engineering, chemistry, electricity and electronics, civil engineering. If the present rate of output is maintained, then with a five-year course, the institute should by 1977 be producing over 200 engineers per year. According to Hunter's manpower estimates, this would be far above likely manpower requirements; and when further manpower studies have been made, it may well be necessary to review the degree of expansion.

So far as the objectives of the institute of applied research are concerned, initially, at least, it would seem that it is to be primarily concerned with data collecting, testing and standardization, and to some extent, services in instrumentation. Comprising three departments—electronics, mechanical tests and standards, chemistry—its stated objectives, largely to be implemented on a contract basis with industry and business, are: (a) control of the quality of products throught tests and analyses, setting standards, and ultimately providing expert advice; (b) contractual advice for certain industries, including research for medium-scale industries and handicrafts to help improve the quality of their products; (c) research to establish norms and standards appropriate to conditions of use in the country; (d) servicing, repairs and manufacture (to a limited extent) of scientific and technical equipment and instruments. Concerning the last, it is also pointed out that at present such a service does not exist in the country, and that this is a big handicap to all scientific and technical work in education and research as well as in industry. It will thus perhaps remain mainly a task for the Faculty of Science to develop more basic research, perhaps in collaboration with the institute of technology, for it is they who will apparently command the wide range of resources this requires.

Medical sciences

The main provision for the education and training of doctors, pharmacists, and dentists is made at the University of Saigon; but the University of Hué has in recent years established a Faculty of Medicine, which in 1963/64 was offering instruction up to the third year of medicine, and plans have been made to set up a medical centre, including a second faculty, in Saigon with United States aid. Until 1962 the Saigon Medical Faculty incorporated pharmacy and dentistry, but since then these have, one after the other, become separate faculties. None of these institutions undertakes the training of nurses, medical aids or technicians, a task which is carried out under the supervision of the Ministry of Health, apparently without any discernible relationship with the higher levels of medical education. In the absence of specific data, it is not possible to say more on this situation than to suggest that there is probably room for some reconsideration here: since surely there is much to be said: (a) for not completely separating the training of doctors and fully qualified nurses; and (b) for involving the Medical Faculty in at least giving guidance in the training of medical auxiliaries and technicians.

Requirements for the award of medical qualifications are as follows.

Medicine. One pre-medical year, followed by a minimum of six years, including two pre-clinical and four clinical years, the last of which constitutes an internship. The award of the medical doctorate requires, in addition to a pass in a final comprehensive examination, a certain number of credits for course examinations and the presentation of a doctoral thesis. Facilities for post-graduate specialization and training are provided in certain fields, but at present these are apparently very limited, and research in the proper sense of the word still remains to be developed. In this connexion it would probably be desirable to ensure close working relationships with the genetics and nutrition departments of the proposed institute of applied research in rural life as soon as the opportunity arises. This should be facilitated by recent medical education reforms that emphasize the development of multidisciplinary laboratories, correlated education in medical sciences, and increased attention to preventive medicine.

Pharmacy. Until 1962/63 a diploma in pharmacy required a minimum of five years of study and training in which the first year was spent in apprenticeship at a recognized pharmacy and courses in the following years covered a wide variety of basic sciences like botany and chemistry as well as such specialized practical fields as toxicology and drug legislation. The curriculum is at present being revised.

Dentistry. This discipline also requires five years of study and training, including a 'pre-dental' year providing a general coverage of basic subjects intended to give an adequate grounding for subsequent professional education and training.

While for pharmacy and dentistry the full *baccalauréat* remains the basic entrance requirement, in the case of medicine, the requirement of the P.C.B. certificate has since 1962 been replaced by a combination of a more general preparatory course and two examinations. The first is a competitive examination that selects secondary graduates for entry to a pre-medical course which, in addition to the P.C.B. subjects of physics, chemistry and biology, includes

TABLE 14. Medical sciences enrolments,[1] qualifications awarded and staff, 1954/55 to 1963/64

Year	Enrolments				Qualifications awarded				Staff	
	Medicine	Pharmacy	Dentistry	Total	Medicine	Pharmacy	Dentistry	Total	Total	Over-all staff/student ratio
1954/55				665	13	21	4	38		
1955/56				814	10	30	—	40		
1956/57	544	257	40	841	13	52	2	67		
1957/58	614	300	96	1 010	38	49	2	89		
1958/59	702	332	110	1 144	38	33	3	74	41	1 : 28
1959/60	858	507	125	1 490	45	21	7	73	86	1 : 17
1960/61	920	823	163	1 906	59	20	15	94	86	1 : 22
1961/62	1 066[2]	1 261	179	2 506	48	51	22	121	118	1 : 21
1962/63	1 199	1 812	98[3]	3 109	72	58	26	156	151	1 : 21
1963/64	1 219	2 107	89	3 415	78	63	14	155	132	1 : 26

1. Do not include enrolments in the pre-medical year for medicine.
2. From here on enrolments at the Faculty of Medicine in Hué are included.
3. This big drop in dentistry enrolments is unexplained, but probably not merely accidental. It thus also implies a restriction to entry.

genetics, mathematics, psychology, sociology and foreign languages.[1] On completion of this course, candidates must pass the second examination in order to secure entrance to the Medical Faculty. As indicated, while this process starts with a much smaller entry to the pre-medical year—which incidentally reduces the teaching pressure on staff considerably—the number of qualified entrants has nevertheless considerably increased: from 109 in 1961/62 to 143 in 1962/63 for the University of Saigon.

The progress of enrolments, qualifications awarded and staff for all three fields is indicated in Table 14 over the period 1954/55 to 1963/64.

A most interesting fact that emerges from these data is that, even before the introduction of reforms has had time to take effect, the graduation/enrolment ratios were much higher than for arts and science. Indeed, in the case of medicine, they have been fairly good, i.e., some 55 per cent of the total 1956/57 and also the 1957/58 enrolments graduated in the respective following six years. At the same time, it is found that the general staff/student ratio has not been particularly satisfactory, even though better than for arts and science. It may be concluded that here higher efficiency and greater productivity must be the result of the seriousness of approach and effort of both institution and students. There thus seems no valid reason why arts and science should not be able to achieve similar success with appropriate reforms, in particular in terms of admission to the first propaedeutic years, for it is here that a major share of losses is suffered.

Finally, it is also interesting to note that, in comparison with arts and science, the increase in the number of graduates has advanced far more rapidly; thus, in medicine, between 1956/57 and 1963/64 enrolments a little more than doubled while the number of graduates rose exactly sixfold. The reason for the same kind of progression not holding true for the over-all field is that in pharmacy enrolments have increased far more rapidly than output —in a ratio of about 34:1.

To improve the doctor/population ratio from about 1:20,000 to more reasonable proportions over the next ten to fifteen years, Hunter and the Unesco team both proposed a rapid increase to outputs of 250 to 400 medical graduates per year. With graduates from Hué due to materialize by 1966/67 and planned expansion in Saigon, it should not be difficult to achieve such targets, especially with improved efficiency and if the higher figure includes pharmacists and dentists as well as physicians (a point which remains vague or ambiguous in most doctor/population statistics).

Agriculture and veterinary science

The development of higher education in agriculture and related fields has

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[1] The intention is clearly laudable, but whether one can do very much in that many subjects within one year is perhaps questionable.

TABLE 15. Enrolments, qualifications awarded, and staff in agriculture, forestry, and animal husbandry, 1961/62 to 1963/64

Year	Enrolments	Qualifications awarded	Staff	Staff/student ratio
1961/62	120[1]	46	—	—
1962/63	176	52	24	1 : 7
1963/64	211	—	31	1 : 7

[1] Rough estimate.

been a comparatively recent innovation in Viet-Nam, and is at present only provided by the College of Agriculture, Forestry and Animal Husbandry, which in 1961 was transferred from Bao-Loc. Development plans for the University of Saigon include the establishment of an agricultural college on its new campus at Thu-Duc as a division of the university.

When, in late 1959, university-level courses were started at the college—which until then had been providing only three-year secondary and certain in-service training courses—they were intended to cover three years following the full *baccalauréat*, with specialization in one of the three fields during the last two years. Since 1963, the required period of study has been extended to four years. At the same time, while the shift to Saigon has apparently made it easier to recruit fully qualified teachers, the temporary premises—including lecture rooms shared with other schools—and educational and laboratory equipment are quite inadequate. However, in developing current facilities it is also planned to introduce a rural engineering section and a teacher-training section for the training of secondary teachers of agricultural education.

Competitive entrance examinations are held for which candidates must hold the full *baccalauréat*. Only a small percentage of those sitting for these examinations is admitted: in 1962/63, 60 out of 463 (13 per cent). In 1963/64, while as many as 100 were admitted, the number of applicants had risen to 1,357.

Enrolments, qualifications awarded and staff are given for 1961/62 to 1963/64 in Table 15. Considering that the college started with 60 students in late 1959, a remarkably high output (80 per cent of the entrants and 100 per cent passes for candidates at the final examination) and a rapid increase in enrolments have been achieved in a very short time.

The high staff/student ratio must be qualified by the fact that, in 1962/63, apparently only six teachers were full-time (including four expatriates) and in 1963, 15 (including six expatriates). But again the situation is clearly very much better than in arts or science. Furthermore, in 1960 there were some 35 carefully selected Vietnamese students of agriculture completing advanced courses at foreign universities, a number of whom were expected to become teachers at the college.

With regard to manpower requirements in agriculture, the Unesco mission suggested a rough target of around 6,000 graduate agriculturists which it would require an output of 200 graduates per year to maintain, implying a total enrolment of 900, on present performance. On the other hand, in view of the unsettled circumstances of the country, Hunter suggests that, at least for the next ten years, this would probably involve overproduction, and instead recommends an initial target of no more than 500 graduates and an annual average output of 40 to reach this level. The latter objective has already been exceeded by over 25 per cent in 1963/64, and for 1972 the proposed enrolment for the planned college of agriculture is 2,000. Whatever conclusions might be suggested by more detailed manpower studies, the differences between the suggested magnitudes are so great that it seems most desirable not to advance too fast before reliable data have been obtained. This is further emphasized by the great need to improve and develop facilities, equipment and research in agricultural education. The high priority given to the establishment of an institute of applied research in rural life is most relevant here.

The proposed objectives of the institute include: (a) study of the economic and social problems of underdevelopment in Viet-Nam; (b) promotion of applied research on questions that so far have received insufficient attention; (c) laboratory facilities suitable for refresher courses for agricultural personnel, for research requirements of the staff of the agricultural college, and for initiating agricultural students into the techniques of research. For the achievement of these aims, it is planned that the institute should have the following four departments: economic and social research; genetics (botanical, animal and microbial); human nutrition; and ecology. The institute, in conception at least, thus presents an excellent base for the development of interdisciplinary work not only within and among its departments and with the College of Agriculture, but also with other divisions of the university—in particular, the proposed faculty of economics and social sciences and the Faculty of Medicine—indeed its success will ultimately depend on the extent and effectiveness of such collaboration.

Education and teacher training

The education and training of teachers for the first and second cycles of secondary education is primarily undertaken by the Education Faculties of the Universities of Saigon and Hué. But until 1966 their work will continue to be supplemented by the Education Faculty of the University of Dalat. Furthermore, in January 1963 a Technical Education Teacher-Training Centre was established at Phu-Tho, with a first entry of 25 students training for the first cycle of technical secondary education and 25 for the second cycle. Finally, it has been proposed that an agricultural teacher-training centre should be incorporated in the College of Agriculture.

Until recently a minimum of three years of study, following on the full *baccalauréat*, was required for a diploma in teacher training. This was subsequently extended to four years: but with the academic year 1965/66, the faculties are again providing a three-year course, to be preceded by a propaedeutic year in arts or science at the appropriate faculty. Each education faculty has several separate sections, e.g., for history and geography; English; physics and chemistry. While the emphasis is on content courses, a number of practice teaching hours are also prescribed.

Since July 1962, the Saigon Faculty of Education has also included a centre for the part-time accelerated training of first-cycle secondary teachers to meet pressing demands from both public and private schools. It includes departments of Vietnamese; French; English; history, geography and civic education; mathematical, physical and natural sciences; community education—introduced for the first time as a full section in teacher training. All lectures are held in the evening and are given by teachers of the University of Saigon at the rate of ten hours per week, amounting to 440 hours per year. The full course, open to all who hold the full *baccalauréat* and are over 20 years of age, extends over two years; and those passing the final examination—preceded by a first-year examination which may eliminate unsuitable students—receive a junior secondary school teacher certificate. In 1962 the centre was expected to train at least 300 teachers each year. So long as the output of graduate teachers cannot meet the total demand, this is certainly a practical interim arrangement, particularly if some of the trainees also hold one or more certificates of higher education—a possibility which might be further exploited in view of the many who take some certificates but do not proceed to a *licence*. Nevertheless, it would be unfortunate if this retarded the development of a permanent solution rather than constituting a stage in its evolution. The fortunate circumstance of close association with the university should further this development: certainly it places great responsibility for guidance on the university.[1]

The Technical Education Teacher-Training Centre provides two levels of education and training: one for first-cycle teachers, extending over two years, the second for second-cycle teachers, requiring a full four years of study. Graduates of the second course will receive diplomas considered equivalent to a *licence ès science* or an engineering diploma.

Admission requirements, in addition to the full *baccalauréat*, with appropriate specialization for the chosen field of training (e.g., for the technical,

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[1] An Education Ministry report, received since this profile was completed, indicates that from 1964/65 the centre has indeed become an integral part of the Saigon Faculty of Education and students who hold the propaedeutic certificate are admitted to one-year teacher-training courses on the basis of a competitive examination.

TABLE 16. Enrolments, qualifications awarded and staff[1] in faculties of education, 1954/55 to 1963/64[2]

Year	Enrolments	Qualifications awarded	Staff	Staff/student ratio
1954/55	72	14		
1955/56	101	24		
1956/57	126	50		
1957/58	226	96		
1958/59	801	259	107	1 : 8
1959/60	984	281	97	1 : 10
1960/61	975	269	111	1 : 9
1961/62	1 032	276	87[3]	1 : 12
1962/63	1 073	284	85	1 : 13
1963/64	1 229	283	124	1 : 10[4]

1. Includes a large number of part-time teachers.
2. Until 1958 data refer to the National School of Education before it was made a faculty of the University of Saigon.
3. This decline, although mainly limited to part-time teachers, is not explained by available data.
4. Only the staffs of Saigon and Hué; so that including Dalat would probably improve the staff/student ratio even more.

the mathematics section or the technical *baccalauréat*), include stiff competitive entrance examinations, except for the accelerated course. All those admitted receive full State scholarships. There are a large number of applicants, since apart from fair salaries and security, teaching positions also carry considerable prestige. However, only a small number can be admitted: in 1962/63 just over 8 per cent (460 out of 5,664 candidates). In 1963/64 the higher percentage of a little over 12 per cent only meant that the number of candidates had declined, the number admitted being the same (460 out of 3,690 candidates).

Admission to the Technical Education Teacher-Training Centre and to the proposed training department for secondary agricultural education is also through competitive entrance examinations.

Enrolments, qualifications awarded, and staff covering the three faculties of education (not including data for the accelerated course in Saigon) are given in Table 16 for 1954/55 to 1963/64.

It is clear that an extraordinary expansion has been achieved without sacrificing efficiency of output: between 1955/56 and 1963/64 enrolments increasing by about twelve times, but the number of graduates by twenty-four times (a particularly satisfactory result when compared with developments in other fields). Apart from some unexplained vagaries in statistics —probably due to inclusion of accelerated-course graduates and temporary shifts in the total teaching force—in recent years the graduate outputs indicate a high efficiency rate; thus, over one-fourth of the 1962/63 enrolment graduated in 1963/64. This is also borne out by the fact that, between 1959/60 and 1961/62, an average of about 97 per cent passed the final examination for graduation. Lastly, even with the temporary decline in staffing, the apparent staff/student ratios have remained reasonable, though as in other cases it must also be recognized that a large number of these are junior part-time teachers.

In terms of future requirements for graduate secondary teachers there are again varying estimates. The Unesco team estimates for annual average requirements up to 1980[1] are a minimum of 1,400 and a maximum of 1,900. One more or less rational guess places current needs at an annual graduate output of 700 for public secondary schools alone. Hunter proposes a minimum annual output of 400 to maintain a force of 10,000 secondary teachers for a general secondary enrolment of 300,000 in the 1970's, which either suggests that enrolment should not be allowed to increase (293,232 in 1963/64) or ignores the implications of continuing increases at a high rate of expansion; the Unesco team estimates for 1975 are a minimum general secondary enrolment of 521,600 and a maximum of 646,340. Corresponding figures for secondary technical/vocational, rising very rapidly after 1963, are 52,018 and 63,034.

Given past performance, the expansion of the Education Faculty at Hué, the establishment of a faculty at Thu-Duc to receive 1,800 students by 1972, and the development of technical and agricultural teacher-training centres, the achievement of the higher targets does not appear to present insuperable problems. But, again, before effort is organized in a definite direction, the need for a careful assessment of future expansion of secondary education, together with its over-all implications (economic as well as teacher needs), cannot be over-emphasized. Meanwhile, it is to be noted that the importance of quality is fully recognized, and, as is shown by curricula reforms, is receiving at least as much attention as an expansion in output.

STUDENTS

No survey of the socio-economic origins of university students is available, but in general it is believed that most of them come from middle- and upper-income groups in urban areas, an impression which is strengthened by the findings of a survey of the students at the National Institute of Administration.[2] The report points out that:

'A breakdown of the geographical data provided by respondents reveals

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[1] Based on a teacher/student ratio improving from 1:33 to 1:25, additional provision for increased enrolments and 4 per cent annual wastage.

[2] Jason L. Finkle, *A Profile of NIA Students*, Michigan State University Viet-Nam Advisory Group (Saigon, July, 1961, mimeo.).

TABLE 17. Government scholarships in 1962/63

Institution	Enrolment	Scholarships			Percentage of enrolment
		Full	Half	Total	
University of Saigon[1]	13 847	32	205	237	1.7
University of Hué[2]	2 090	13	101	114	5.5
Institute of Sinology[3]	159	71	57	128	80.5
Faculties of education	1 073	1 073[4]	—	1 073	100.0
National Technical Centre[5]	419	26	63	89	21.2
TOTAL	17 588	1 215	426	1 641	9.3

1. Excluding Faculty of Education.
2. Excluding Faculty of Education and Institute of Sinology.
3. Includes some secondary-level enrolments.
4. At the rate of about $25 per month.
5. Includes agriculture enrolments.

that families of students were highly mobile even prior to the evacuation to the South in 1954/55. In both the North and the South, there was a marked tendency to take up residence in Viet-Nam's largest cities, Hanoi and Saigon.... By late 1959, of 135 students with living parents, almost half gave as their parent's residence the greater Saigon area (accounting for only 11 per cent of the population).

'The typical NIA student is a member of what may be designated the "Vietnamese middle class."... Those from the highest social-economic groups in Viet-Nam are able to pay their way through the University of Saigon or to study abroad. There is a belief among Vietnamese, whether valid or not, that the university and particularly foreign study offer greater prestige and provide better access to important positions in Viet-Nam than does the NIA. Young men and women from poor families, on the other hand, who might be prospective applicants for admission to the NIA, have often had inadequate or interrupted educations.'[1]

On the other hand a large proportion of the total enrolment—estimated at between 50 and 70 per cent—comprises students who work to supplement their funds or in certain cases even to meet a major share of the family's expenses. It is thought that this often interferes seriously with their studies, but the situation is perhaps not as bad as it might be, since most of them find jobs teaching privately or in schools. In terms of living costs—estimated at between $17 and $25 per month—the remuneration for such part-time work, which has its educational value as well, is fair: $0.45 to $0.60 per hour or $10 to $25 per month.

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[1] ibid., pp. 10 and 22.

Nevertheless, economic reasons undoubtedly prevent a considerable number of poorer students from entering higher education, and also account for the fact that so many of those enrolled proceed with their studies on a slow part-time basis or drop out before graduation.

In general, the number of scholarships available is very small, and even full government scholarships, amounting to about $140 per year, can only cover a bare minimum of expenses. Government scholarships awarded at various institutions in Viet-Nam, not including the special case of the National Institute of Administration, were as shown in Table 17 in 1962/63.

Apart from illustrating the small proportion of scholarships to total enrolments, these data also underline the concentration of limited resources in specialized fields, which probably—in so far as resources cannot be appreciably increased—ensures a more effective utilization than would be achieved by spreading them thinly over the whole field of higher education. But it may be questioned whether it is really necessary to go quite as far as in the case of education and sinology.

In teacher training all students receive scholarships and are bonded to serve the government for a minimum of ten years. The same holds true for regular students of the National Institute of Administration. Some other government scholarships are available for agriculture students and there are a few offered by private or denominational bodies, but these are apparently not numerous enough substantially to affect the rough picture given by Table 17.

Residential facilities are also extremely limited. For Saigon's 15,000 students in 1962/63, there were only two government and three denominational hostels offering accommodation to about 700 students (about 4.7 per cent of enrolment), mostly under overcrowded conditions. The considerable number of students coming from outside Saigon have to make their own arrangements, usually as boarders with families, at a monthly cost of about $17 for board and lodging. On the new campus at Thu-Duc a student centre (*cité universitaire*) has been planned which will accommodate 2,500 students and include a large university restaurant.

At Hué a government hostel provided accommodation for about 80 of the 2,500 students enrolled in 1962/63, i.e., just about 3.2 per cent. However, the situation may still be a little better than in Saigon because it is said that most of the students (about 70 per cent) come from families living in or near Hué. But in so far as this is true now, the situation will undoubtedly change with the further expansion of the university—in particular the completion of its Medical Faculty—and there are plans to establish more hostels.

The private university of Dalat in 1962/63 met a considerable part of the demand for accommodation from its 584 students by providing residential places for 110 men and 28 women students (totalling about 24 per cent of enrolment).

Student activities, health and guidance services

Student extra-curricular activities have, since 1962, taken on a strong and persistent political aspect. Until then it had often been observed that, in comparison with students in most other countries of Asia, Vietnamese students kept remarkably aloof from politics. The reasons for the change are not clear, but it began with the Buddhist demonstrations preceding the coup of November 1963 (see p. 216), and then university teachers as well as students were involved in large-scale demonstrations of their own. Ever since, the government in power has continued to feel the pressure of student demands in various issues, and there have on occasion been clashes between student demonstrators and police.

Activities appropriately related to student life are organized through university student associations, the National Union of Students centred at Saigon, the World University Service Committee (WUS) co-operating with the National Union, the Voluntary Youth Work Camp, and religious student bodies. Membership of the National Union has been voluntary, with active membership estimated to be small, and activities limited for financial as well as for other reasons. It has been proposed, apparently with the approval of the Ministry of Education, that all students should be required to become members and contribute a small membership fee, which would help to support co-operative student welfare projects. At present it operates a reading and study room in Saigon and, in collaboration with WUS, an employment bureau for students seeking part-time work.

There are no organized student guidance services, and, out-of-class relationships between students and teachers are very limited. Apart from the general desirability of establishing such a service, the need for it seems to be stressed by a number of special factors: multiple enrolments and irregularity of attendance, pressures of combining study and work, academic disquiet among the student community. While guidance and counselling on its own may not be able to resolve these problems, they should certainly help to deal with them—not least by a continuing study of student problems and attitudes indicating other measures that may be taken with some basic student support and co-operation. A specific though small-scale example of what may be achieved through student, staff and administrative collaboration is provided by the operation of a co-operative book bank and bookstore by the WUS committee.

Until recently a health service was operated only at the University of Saigon, but the University of Hué required a medical check-up during the course of studies and provided a 50 per cent discount on medical care for students at general hospitals in the city. Now health centres have been established at the other two universities as well, but all are largely limited to providing free consultation and medication for minor ailments. The Saigon Health Service has, however, also concentrated on carrying out X-ray surveys to discover tuberculosis in its early stages. In a survey during 1962, it was estimated that the disease affected as many as 2.5 per cent of the student population. Further steps to deal with the situation are planned; and the Ministry of Education has declared itself especially concerned for the development—at both secondary and higher levels—of well-organized physical education, guided extra-curricular activities, and university canteens providing nutritive midday meals at modest prices.

Graduate employment

Although no surveys of graduate employment trends are available, it is generally considered that graduates have little difficulty in finding work either in the civil service, which is generally their first preference, or in private business and industry. There is an understandable disinclination to go to the less secure areas of the country, as well as the usual tendency to concentrate in the capital or, failing this, in other major cities or resort towns.

STAFFING

Quantitatively, the major staffing problem manifests itself in the low staff/student ratios in the fields of the arts, science and law. It is to be concluded that this is due to a genuine shortage of qualified teachers because salaries are reasonable and there is little doubt that a university teacher enjoys considerable social prestige.

A good, though not precisely known, proportion of full-time senior staff hold foreign qualifications, and a significant number of such staff continues to be expatriate. On the other hand, increasing use has been made not only of licentiates, but also of senior students to assist with teaching and laboratory work, largely on a part-time basis, as instructors (*chargés d'enseignement*). They constitute a large proportion (about 43 per cent at Saigon and Hué in 1963/64) of the total teaching strength, and as opportunities for graduate work and research are advanced, the use made of this potential can not only be increased but improved in quality—particularly if some systematic effort is made to help them develop their teaching abilities and techniques.

Appointment as a permanent full-time university teacher, starting as an assistant professor, generally requires the doctorate as a minimum qualification, and in law and medicine, frequently but apparently not always, the *agrégation* taken in France. All teachers are civil servants, and appointments are made by the Ministry of Education on the recommendation of the faculty council and senate of the institution concerned. However, appointments to the National Institute of Administration are made by the head of the government on the recommendation of its Academic Committee and Board of Administration. In certain cases temporary junior appointments

TABLE 18. Annual salary scales of university teachers[1]

Rank	Salary scale (dollars)[2]		Ratio to *per capita* income in 1962[3]	
	Maximum	Minimum	Maximum	Minimum
Professeurs titulaires (full professor)	5 150	4 044	48	38
Maîtres de conférences et agrégés de droit ou de médecine (associate professors or holders of the post-doctoral teaching qualification in medicine or law)	4 044	3 300	38	31
Professeurs délégués (assistant professors)	3 534	2 940	33	27
Chargés de cours (lecturers)	1 680		16	
Chefs de travaux (demonstrators)	2 364	1 356	22	13
Assistants	1 560	1 260	15	12

1. The French titles are given as there are no exact equivalents in English: the translations in brackets only indicate their general sense.
2. US.$1 = 60 piastres.
3. At market prices $107; cf. p. 217.

may be made by the rector; and procedures for part-time staff appointments at the technical colleges are especially flexible, as the aim is to make full use of the experience and knowledge of qualified persons active in industry and civil engineering.

Members of the regular staff are in principle required to teach from three to eight hours a week, but usually they need to spend additional time on teaching, which, as in the case of courses given by visiting lecturers, is remunerated at the rate of $5-$7 per hour, or on an annual or semester basis for supplementary courses. Furthermore, most university teachers also hold executive positions in various government agencies and most professors of law are practising lawyers or judges. The combined effect of these two factors is that the time available for research and the guidance of independent work by students is generally very limited, and this further aggravates the problem of the inadequate teacher/student ratios in various faculties and departments. Accordingly, one of the greatest needs to be filled by the arts, science, and law faculties is the development of their post-graduate work to provide more and adequately qualified university teachers.

The minimum and maximum annual salary scales for different grades of university teachers given in Table 18—especially when taken together with allowances, ranging up to about $550 per year for assistant lecturers, and $840 for professors and senior lecturers, as well as additional lecture fees—

TABLE 19. Direct aid in providing teachers for higher technical education from non-United States sources, 1960-65

Donor country or organization	1960/61	1961/62	1962/63	1963/64	1964/65
Colombo Plan	3	3	2	3	3
France	40	50	60	60	60
Germany (Fed. Rep.)	5	8	15	5	5
British Council			4	4	4
TOTAL	48	61	81	72	72

suggest that at least the financial incentives for becoming a university teacher are fairly good in terms of standards within the country.

However, despite various efforts made in recent years, Viet-Nam has had very limited success in attracting qualified nationals working abroad and continues to lose a number of students who go abroad for further studies and do not return.

Assistance in meeting the shortage of highly qualified teachers has been received from various sources in substantial measure between 1960 and 1965, as illustrated by Table 19, which does not include a number of teachers on contract from the United States.

With the proposed development of higher education, in particular the new institutes, the need for such assistance will probably increase; but in working toward a stable solution, one of its main objectives should be to reduce dependence on it by promoting the output and training of university teachers within Viet-Nam.

Finally, in the development of the new campus of the University of Saigon, work has been started on establishing a *village de professeurs* near the university on a co-operative basis. The teacher's housing co-operative has been assisted by private bank loans as well as government aid in providing the infrastructure (roads, water and electricity, school, market, etc.). Such co-operation is most helpful in a situation of critically limited resources, and not only benefits the community of teachers but also facilitates their full-time involvement in the life of the university.

EXTENSION AND EXTRA-MURAL WORK

Extension and extra-mural work by institutions of higher education have so far been largely limited to accelerated teacher-training programmes, occasional field work by students and staff of the Agricultural College and sporadic work camp and social welfare activity by volunteer student groups. The main extension programme of the Saigon Faculty of Education in sponsoring and providing staff for the Junior High School Teacher-Training Centre has already been described (p. 256). Even in general terms, agricultural extension has reached only a rudimentary stage in Viet-Nam, although in 1955 the government established a centralized extension service to supervise three regional centres (Direction Nationale du Service de Vulgarisation et de l'Amélioration de la Vie Rurale), and the work of the Agricultural College has been limited to what is done under the heading of practical work in the field, for which ten weeks in each year of the course are assigned. The emphasis—perhaps rightly in the initial stages of the college's development—has been more on apprenticeship and learning than on a contribution to passing on knowledge and experience to the farmer.

Nevertheless, in 1959 the United Nations Economic Survey Mission to Viet-Nam[1] made the following strong recommendation: 'That it is essential to maintain close co-ordination between research, education and extension services. It should be easy to establish close co-operation between research and extension services, as they belong to the same ministry; with regard to the proposed agricultural college, even if it were placed under the university (and, thus, under the Ministry of Education), means of co-ordination with the research organization would have to be established through a joint board of directors, co-operative research projects and the employment of staff members of the research institute (a proposed central research institute in agriculture) to teach special courses. The technical divisions of this institute should also be used for post-graduate training of students of the college.'

The institute of applied research in rural life which is to be set up on the university campus at Thu-Duc (pp. 243, 255) should in future promote both the above objectives and the development of over-all extension work by the university. Even if the institute, as its planned programme suggests, concentrates almost exclusively on surveys, studies and experimental research, it would seem desirable that it should also encourage and stimulate extension work by the college and by other divisions of the university. Problems of security, of course, again enter into the picture, and it may be that a full development of such activity will have to await the resolution of this problem rather than help to solve it.

Student work camps, largely encouraged and sponsored by the Voluntary Youth Work Camp Organization, mainly consist of minor construction jobs in which, for instance, students, including secondary-school pupils, help villagers set up a small school building, improve sanitation, or build a road, and for a few days share their life and problems. Medical students have on

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[1] Technical Assistance Programme, *Toward the Economic Development of the Republic of Viet-Nam. Report of the Economic Survey Mission to the Republic of Viet-Nam, organized by the United Nations, ILO, FAO*, p. 76 (New York, 1959, ST/TAO/K/Viet-Nam/1, ILO/TAP/Vietnam/R.4, FAO/Report No. 539).

TABLE 20. Direct aid in scholarships and grants, 1960-65

Donor country or organization	1960/61		1961/62		1962/63		1963/64		1964/65	
	Students	Civil servants	Students	Civil servants	Students	Civil servants	Students	Civil servants	Students	Civil servants
Unesco		8		9		10		7		
Colombo Plan:										
Australia			11	4	17		14		17	
Canada	10				7		32		50	
New Zealand	2		20	2			15	2	13	
United Kingdom		1		2		2		2		
Japan	4		6		7		8		8	
India			3			1				
France	33	19	6	33	19	31	28	10	7	13
Germany (Fed. Rep.)	12	2	8	2	5	1	6	10	2	3
USIS					1	2	1	3	1	4
East-West Centre, Hawaii							1	4		4
Philippines	2									
Italy	4		2							
Belgium					3				3	
Switzerland	3				1					
Asia Foundation						2				
TOTAL	70	30	56	52	60	49	105	38	101	24

occasion also organized projects to provide medical assistance in areas short of health centres and doctors. If the stated objectives of organizing educated youth in the service of rural areas (p. 216) are to be implemented, there are clearly opportunities for expanding and co-ordinating such student activities in a systematic way with adequate administrative and government support.

STUDY ABROAD

A considerable number of students go abroad for further studies, particularly to France at the post-graduate level, though an increasing number have recently been going to the United States. A number of these go on a private basis, and consequently no separate statistics are available. Estimates of the total number of Vietnamese students abroad date back only as far as 1959/60, when they numbered about 1,900 and formed nearly a quarter of the enrolment within Viet-Nam.[1] Most of these went to France (1,286), the United States (355), and a number of countries where French is the medium of instruction (147). Government scholarships are provided under special categories, and especially for prospective teachers in higher education. Between the academic years 1959/60 and 1964/65 no fewer than 861 scholarships were awarded by the government, 522 to students and 339 for in-service training. The United States received 303 of these students, France 178, Canada 105, and of a number of other host countries, Australia 70 and the Federal Republic of Germany 40. The subjects studied ranged from nuclear physics to home economics, from midwifery to comparative philisophy. All students receiving such government scholarships are bonded to serve it for a minimum of ten years.

In addition to this provision, a number of scholarships for study abroad are provided through various agencies and through bilateral programmes. A résumé of these, including those awarded to civil servants, for 1960-65 is given in Table 20.[2]

EDUCATIONAL DEVELOPMENT OBJECTIVES AND FINANCE

PLAN OBJECTIVES FOR EDUCATIONAL DEVELOPMENT

The principles and objectives on which schemes for educational development are based emphasize qualitative as well as quantitative factors. The stated principles are:

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[1] Unesco, *Study Abroad, XIII, 1962*, p. 683 (Paris, 1962).

[2] Unfortunately a breakdown by subjects is not available.

1. Quantitative development in response to the steadily increasing demands of an expanding school-age population at all three levels of education.
2. Qualitative progress: reduction in the number of pupils per class and per teacher; reform of curricula and examinations; training teachers qualified from the cultural as well as the pedagogic point of view; increase in the number of school inspectors; improvement of school equipment, teaching materials and textbooks.
3. Adapting the various levels of education, and especially higher and technical education, to the manpower needs of different sectors of the country's economy.
4. Facilitating the transfer from general to technical education.

In line with these principles the following general objectives are defined for the educational plan: (a) universal access to a good basic education; (b) education designed for the integral development of the individual and his role in society; (c) education harmonized with the development of the country.

Primary education

Public primary education enrolments are to be increased by 57 per cent in the plan period from 1,092,490 to 1,717,490. For this purpose, it is proposed that each year 2,500 teachers should be trained and 2,500 new classes added. While for new pupils and teachers this implies a pupil/teacher ratio of 50:1, for the total enrolment the ratio would improve only slightly from 58:1 in 1961/62 to 54:1 in 1966/67.

Capital and recurrent expenditure for the development, including salaries, at an increasing rate for the five-year period is estimated at about $65.42 million.

Secondary education

As a measure toward qualitative improvement as well as quantitative expansion, the principal emphasis is placed on teacher training. The plan proposes: the establishment of a centre for the training of first-cycle secondary teachers and extension of the faculties of education; a centre for the upgrading of teachers in service; recruitment of teachers for these centres, modernization of methods of teacher training, development of studies and research on this subject; reduction in the number of pupils per class and per teacher; effective control of private secondary education and the application of teacher-training requirements for public schools to private schools.

In public secondary education, it is planned to set up 250 new classes and 10 new laboratories (five for the first and five for the second cycle) each year. For this, at the rate of three teachers to two classes, 375 new teachers are to be recruited each year. Counting 50 pupils per class, it is estimated that enrolments would grow by 73 per cent from 85,554 in 1961/62 to 148,054 in

1966/67. This continues to leave a large share of the responsibility for secondary education with the private sector; and while enrolments in the first two years of the plan increased by about 27,000 as against an anticipated 24,000, the number of teachers has increased by only 270 as against a target of 750. At the same time, in 1963/64 the public secondary pupil/teacher ratio stood at 53:1 as against the plan objective of reducing this to about 37:1 by 1966/67.

Secondary and primary technical education

The main plan objectives are to create one craft school for each of the populous zones; consolidation and improvement of existing establishments; expansion of secondary vocational schools; raising of the status of technical personnel; reorganization of the Directorate for Technical Education (primary and secondary). No estimates of future enrolments and staff are made; but it is emphasized that the greatest need is to establish a training centre for teachers in secondary technical education.

Teacher training

For the over-all development of teacher training at all levels, the following general measures are proposed: expansion of enrolments; progressive replacement of the one-year accelerated training course by a two-year course; establishment of more teacher-training colleges; creation of an evening course for first-cycle secondary teachers, attached to the Saigon Faculty of Education; institution of a teaching certificate at the University of Saigon; consolidation of existing training colleges; improvement of teaching methods and utilization of modern teaching materials; training of teachers for technical education; reorganization of the service of school textbooks and other publications, recasting the status of teaching and gradual discontinuation of the employment of teachers who are not fully qualified.

Higher education

No university enrolment, staff or graduation targets are indicated, but a number of specific projects for expansion and qualitative development are briefly outlined. Three major projects are: the establishment of the campus at Thu-Duc (pp. 243-5), which was already in progress at the time the plan was adopted; construction of a medical centre, with United States aid, including a basic sciences building, serving the three sections of medicine, pharmacy and dentistry, and a 300-bed hospital; extension of the University of Hué. Other projects comprise. the creation of a laboratory for architecture and construction materials and institutes of comparative law and of business administration; the normal extension of faculties, in particular those of Science, Letters and Law, in view of increasing enrolments.

From the viewpoint of quality the following measures are indicated as under study or in the process of implementation: selection and recruitment of qualified teachers; reforms of curricula both to adapt them more adequately to the needs of the country and to bring them in line with the progress of modern science; improvement of teaching methods; creation of divisions for research, studies and practical work with modern equipment.

Since the adoption of the plan, the scheme for expansion has been much enlarged. Whereas the plan projects called for an investment of about $18 million, the new proposals now contemplated—anticipating enlarged foreign aid and including a national institute of technology, a school of architecture, a college of agriculture, a music conservatory and university museum—require an investment of well over $32 million.[1]

Higher technical education is mainly intended to develop with the expansion of the National Technical Centre at Phu-Tho through the following measures: improvement and development of the existing organs and teaching facilities of the centre; the creation of laboratories and workshops which are still lacking at the centre and its colleges; establishment of a school of industrial chemistry. The teaching staff is to be increased, either by sending the best graduate students of the centre abroad for further study and training to return as qualified teachers, or by sending existing staff, in turns, for refresher courses.

These objectives have again been further extended both for the centre at Phu-Tho and in terms of the projects for a national scientific centre, a national institute of technology and a college of agriculture. Since there is some overlap between the various proposals and requests for international and other foreign aid, the Unesco mission[2] has suggested that research and other higher technical education facilities might be concentrated at the research centre and the technical institute; while the Phu-Tho centre is then left to specialize in the training of technicians.

FINANCING EDUCATIONAL DEVELOPMENT

During 1959 to 1963, total educational expenditure accounted for less than 2 per cent of GNP and fluctuated between 10.5 and 16.6 per cent of the national civilian budget. If the total budget, including defence and military expenditures, is taken into account (see pp. 218 and 222), then the rough average of expenditure on education falls to about half of the above percentages. The latter point is simply a reflection of the fact that around half the

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[1] *Mission d'étude de programmes d'investissements en matière d'éducation*, op. cit., p. 175.

[2] ibid., pp. 104-5.

TABLE 21. Educational expenditures[1] as percentages of GNP and the civil budget receipts, 1959-63

Year	Revised GNP estimates[2] (million piastres)	Civil budget (million piastres)	Educational expenditure[3]		
			Amount (million piastres)	Percentage of GNP	Percentage of civil budget
1959	...	9 791	1 390[4]	...	14.3[4]
1960	83 037	10 417	1 413	1.7	13.6
1961	85 815	12 436	1 585	1.9	12.8
1962	5 525	11 414	1 766	1.8	15.5
1963	...	11 969	1 983[4]	...	16.6[4]

... Data not available.

1. Regional as well as national.
2. At market prices, by the National Bank of Viet-Nam, October 1964, *Revue mensuelle*, op. cit., p. 16.
3. Figures are based on those provided by the Unesco mission and differ significantly from those of the Unesco team which, with the exception of a high point of 10.5 per cent for 1961, indicate that, as a percentage of the civil budget, educational expenditure declined from 9.7 to 8.8 per cent.
4. Budget estimates.

total budget has been absorbed by defence operations. While increased military expenditures would further distort the situation, it is also true that with a cessation of hostilities and a more normal budget, the share for education would tend to rise above the past level—indeed, so far as proposed investments over the plan period are concerned, these, on the basis of unavoidably rough computations, amount to over 13 per cent of the total public investment. On the basis of a GNP growth rate of 4 per cent and enrolment and per student recurrent cost projections, the Unesco team suggests that the percentage of GNP allocated to education should grow, at a minimum, from 3.1 per cent in 1965 to 5.2 per cent in 1980 and, at a maximum, from 3.1 per cent to 6.3 per cent over the same period. If to this the capital costs of expanding facilities for increasing enrolments are added, at the rate of about 30 per cent of average recurring expenditure, a minimum of 7 per cent of the GNP and a maximum of 8 per cent would be required as an average between 1963 and 1980. These high targets, involving a fourfold increase in the proportional actual expenditure in 1962, seem based upon an optimism for which practical circumstances unfortunately offer little support. What, however, does emerge on the basis of these calculations is that even much reduced objectives for educational expansion would require a continuation of massive foreign aid. If this is not forthcoming, the country will have to give very careful reconsideration to current priorities in educational development.

TABLE 22. Amounts, percentages and ratios[1] of public expenditure by levels and types of education[2]

Levels and types of education[3]	Approximate total expenditure, 1963/64 (in thousands of dollars)						Recurrent per student expenditure (dollars)					
	National budget			National and regional budget			1959-64 average		1980[4]			
									Constant *per capita* income		Increasing *per capita* income	
	Amount	%	Ratio	Amount	%	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio
Primary	10 691	45.5	5.9	20 094	61.0	11.2	16.05	1.0	23.33	1.0	28.37	1.0
Secondary	6 648	28.3	3.7	6 648	20.2	3.7	59.00	3.7	75.00	3.3	86.67	3.4
Technical/vocational	1 811	7.7	1.0	1 811	5.5	1.0	232.27	14.5	200.00	8.7	216.67	7.6
Higher education	2 060	8.8	1.14	2 060	6.3	1.14	122.67	7.6	216.67	9.4	233.33	8.2
Other expenditure[5]	2 301	9.8	—	2 301	7.0	—	—	—	—	—	—	—

1. Ratios roughly calculated on the basis of taking the lowest figure as a unit of one.
2. Based on Unesco team data taken from Ministry of Education. As such, while for 1963/64, agriculture is included, educational expenditures for certain other training programmes are left out of account—e.g., for para-medical personnel, the Institute of Administration, and certain forms of craftsmanship. Furthermore, percentages are rough calculations based on absolute piastre figures, while ratios are based on rough dollar equivalents. Differences of up to 1 per cent are due to such variations in approximate equivalences.
3. Separate figures for teacher training are not available.
4. Projections calculated and proposed by the Unesco team on a minimum basis at constant *per capita* income and a maximum at increasing *per capita* income.
5. Includes cultural and scientific activities, scholarships and central administration. This expenditure is not taken into account for establishing ratios between levels and types of education.

Recent trends in over-all public educational expenditures are set out in Table 21.

It is interesting to note that while the civil budget has fluctuated, and actually declined in absolute as well as proportional terms in 1962 and 1963, educational expenditure has remained fairly constant as a percentage of GNP and for the last two years increased as a percentage of the civil budget. The encouragement that may be derived from these data, as indicating a consistent effort to give greater importance to education must, however, be tempered by the fact that the Unesco team estimates (based on figures supplied by the Ministry of Education which do not include educational expenditures of other government departments, e.g., Agriculture and Health) show a downward trend from 9.7 to 8.8 per cent.

Educational costs by level and type of education are given in Table 22, and as usual indicate the high total cost of primary education and the very steep rise in per student costs for higher and technical types of education.

While breakdowns for various main fields of higher education are not available, and therefore cost comparisons must remain most inadequate, it is nevertheless interesting to note that, in relative terms, the Unesco team projections suggest a very substantial reduction in per student costs for technical/vocational education and a slight increase in the per student costs for higher education. In absolute terms, increases are suggested everywhere, except for technical/vocational education. This may be taken to indicate that as enrolments in the latter field increase, per student costs will or should tend to decline.

In terms of the costing of university developments and their operational expenditures, the figures in Table 23 are, in view of the lack of other corresponding data, given in their original form[1] without any attempt at dollar or percentage calculations.

Although any attempt to translate these figures into per student or other comparable terms must, if at all possible, remain most dubious, it is yet clear that, according to plan, the major capital and operational effort is to go into the scientific, technical and teacher-training fields. Furthermore, while in terms of total operational costs science and arts developments are about equal, teacher training, with its much smaller enrolments is still shown as receiving an allocation well over 1.5 times that allotted to each of the other two fields. Whether or not this kind of financial concentration can be achieved, it does seem more than justified by the nature of the educational situation. So far as the development of post-graduate work and scientific research is concerned, it is to be hoped that the proposed institutes and new faculties will provide adequate facilities and promote further progress in fields where much remains to be done.

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[1] Unesco mission, op. cit., p. 175.

TABLE 23. Planned expenditures for Saigon University developments and their operations (thousands of piastres)

Plan projects	Construction and equipment	Operation
Priority projects for international aid		
Rectorate	40 000	9 786
Faculty of Economics	63 115	19 873
Statistical Centre		2 330
National Institute of Technology	417 000	43 000
National Centre of Scientific Research	166 000	24 700
Total	686 115	99 689
Other projects		
General Administration	425 000	33 335
Faculty of Science	236 000	34 500
Faculty of Education	137 000	50 536
Faculty of Letters	81 105	32 773
Faculty of Pharmacy	140 874	17 950
School of Architecture	50 500	6 000
College of Agriculture	100 000	21 600
Conservatory of Music	35 645	11 353
University Museum	45 675	1 382
Total	1 251 799	209 429
GRAND TOTAL	**1 937 914**	**309 118**

Malaysia

BACKGROUND

THE CONSTITUENT ELEMENTS OF THE FEDERATION OF MALAYSIA

'The dominant theme in the political development of the Malaysian territories in the half-century from 1896 to 1946 was the attempt and the failure to unify the administration of the various states.'[1]

It seems expedient, in the case of Malaysia, to outline the political before the topographical elements of the new nation—references to particular features or aspects of constituent member States of the Federation may then be seen in their federal context.

This method is more easily determined than effected. The history of Malaya and Borneo is tangled indeed, and it is scarcely germane to the purpose of this profile to compress into an intelligible paragraph or so a concise narrative of the fluctuating fortunes of the Malayan sultanates in what may be termed pre-Western times.

The documentary sources without which history cannot be truly written are scarce—the Trengganu Stone, an Islamic text, the first dated inscription, is no older than the fourteenth century, and there are no great monuments, however imperfectly preserved, as in the case of Java or Cambodia.

In the days of Indian domination of Indonesia and Malaya, when trade flourished with the large populations of the rice bowls and deltas, Malaya offered poor markets, consisting largely of coastal settlements of fishermen and small traders, the hinterland being still populated by aboriginal peoples practising shifting cultivation. The economic significance of the peninsula lay rather in its minerals, its gems and its spices, and in these lay its early attraction for the Chinese who have for several hundred years formed a significant element of the population.

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[1] D. McIntyre, 'Political history 1896-1946', in: Wang Gungwu (ed.), *Malaysia, a Survey* (Singapore, Donald Moore, 1964).

The Islamic Sultanate of Malacca, following the great Indonesian empire of Majapahit, and the first recognizable seat of wide-reaching power in Malaya, being a great trading centre between Java, India and China, fell to the Portuguese in 1511, and was followed by the Sultanate of Johore, which then bore the brunt of Western incursions.

The Straits of Malacca became the scene of great political turmoil as Portuguese and Dutch rivalry on the one hand, and the dominance of the Sumatran Sultanate of Iskander Muda in the early seventeenth century, gave way in their turn to the conflicting ambitions of England and Holland during the Napoleonic wars, and the English factories and ports established to counter Dutch influence in the China Sea resulted first in the establishment of the Straits Settlements of Penang and Singapore, and then in the spread of British influence through the smaller and larger sultanates of the peninsula which had yet to find a national identity embodying the elements of a common culture.

The profile of Singapore pays tribute to the vision of Stamford Raffles in the early nineteenth century: in the case of Malaya, in default of an elaborate historical survey, more likely to confuse than clarify, it has seemed preferable to group a very condensed account of the growth of the federation round a series of significant dates within the present century.

1902: the colonial régime

Sir Frank Swettenham, not the least able of the British administrators who served in Malaya, wore at least three official hats. From Government House in Singapore, in 1902, he officiated as Governor of the Straits Settlements, High Commissioner for the Federated Malay States (four in number) and High Commissioner for the Borneo Protectorates (British North Borneo, Brunei and Sarawak). By agreement with Thailand he was also able to appoint a British adviser to each of the four Northern Malay States still recognized as 'tributaries' of Thailand (a fictional sovereignty subsequently terminated by the Anglo-Siamese agreement of 1909). The last Malay State to accept an adviser was Johore, in the far south, in 1914.

1940: the Second World War

Nearly forty years later, at the outbreak of the Second World War, despite a number of unproductive moves towards closer union, the administrative situation showed little change in pattern, though there were wide variations in practice. In the Straits Settlements the Governor was supreme. In the Federated States, though the Rulers were nominally sovereign, the Residents were effectively in control: in the Unfederated States and Brunei the Residents were less in evidence. The Governor of North Borneo was almost more of an autocrat than Rajah Vyner Brooke of Sarawak, who had delegated certain of his powers to bodies he himself nominated.

In summary the position was:

Federated Malay States, namely Selangor, Perak, Pahang and Negri Sembilan (itself a union of small states), administered from Kuala Lumpur by a Resident General, with a Resident in each State.

Straits Settlements, namely Penang, Singapore (including Labuan, off the coast of North Borneo) and Malacca.

Unfederated Malay States, namely Kedah, Perlis Kelantan and Trengganu (from 1909) and Johore (1914) with a High Commissioner for the Malay States (also serving as Governor of the Straits Settlements), and an Adviser in each State.

Brunei and *Sarawak*: protected States (sultanates).

British North Borneo: administered by the British North Borneo Company.

It should be noted that the Governor of Singapore still acted as High Commissioner in respect of all three North Borneo States: there is nothing new in the administrative relationship between Malaya and Borneo.

1945-46: after the war

After the Japanese occupation and a post-war British Military Administration:

1. A Malayan Union was precipitately created, in 1946, to include the Federated and Unfederated States, and Penang and Malacca (with Governors), and a strong central government. This in fact meant the abrogation of the powers of the Rulers, 'full power and jurisdiction' being vested in the British Crown.
2. Singapore became a separate colony with its own Governor.
3. A Governor-General, based in Singapore, though without executive authority was appointed to co-ordinate policy in Malaya, Singapore, Sarawak and North Borneo.
4. North Borneo, became a Crown Colony in 1946, and incorporated the island of Labuan.
5. Sarawak was ceded to the British Crown.
6. In Brunei there was no significant change.

1948: Malaya

The situation in Malaya, however neat the imposed solution of setting up a central government may appear to have been, was unviable, being strongly and irresistibly opposed by the leaders of Malay society. Malaya was certainly united, but by the common cause of opposition to the nature of the Union. A series of consultations and negotiations were put in hand less than two months after the Union came into being, and it was succeeded on 1 February 1948 by the establishment of the Federation of Malaya.

Every Malay State—there are nine—received a written constitution, the Rulers became constitutional monarchs, and the Governor a High Commissioner. There then began a period both of constitutional advance towards independence, and the twelve years' struggle of the 'Emergency'—the revolt of the Malayan Communists—a relentless guerrilla struggle in the jungles and on the rubber plantations which was finally quelled only by the stabilizing effect of independence.

1957 and Merdeka

Malaya. The way to independence (Merdeka) was eased by the creation of the Malayan Chinese Association (MCA) supported by the Chinese commercial community, anxious to assist in knitting Malaya into 'one country and one nation'. This led to the formation of an Alliance with the United Malay National Organization (UMNO), led since 1951 by Tengku Abdul Rahman, and the united parties, later joined by the Malayan Indian Congress (MIC), were able to form a government representing all races in 1955. Negotiations between the British Government, the Rulers and the Alliance Party were concluded successfully, and on 31 August 1957 the Federation of Malaya became independent as a sovereign member State of the Commonwealth. A Paramount Ruler was to be elected by and from among the Rulers every five years, being a constitutional monarch acting on the advice of his ministers; a bicameral legislature was devised; and each State was to have a legislative assembly with an elected majority and a Chief Minister. The two settlements of Malacca and Penang also became States, their Governors being appointed by the Paramount Ruler. Islam became the State religion, and the Paramount Ruler was to safeguard the special position of the Malays.

Singapore. The path to independence also opened up in Singapore, though a confused internal political situation made some detours inevitable. However, under a new constitution in 1959, the People's Action Party (PAP) under Mr. Lee Kuan Yew won 43 out of 51 seats, and Singapore emerged as a self-governing State, the Governor became, as the representative of the British Government, High Commissioner, and the Queen's Representative, a Malayan *Yang di-Pertuan Negara* (Head of State). Mr. Lee Kuan Yew's programme stressed the necessity for the closest co-operation with the Federation, and Malay was to become the 'official' language of Singapore. The Constitution was to be revised in 1963—foreseen as the probable date of future full independence.

Brunei. In 1957 a written constitution was promulgated, and the British Resident replaced by a Chief Minister.

TABLE 1. Population of proposed Malaysian Federation in 1960 (in thousands)

	Malays	Chinese	Indians and Pakistanis	Borneo Indigenous (non-Malays)	Others	Total
Federation of Malaya	3 461	2 552	773	—	123	6 909
Singapore	227	1 231	138	—	38	1 634
Brunei	45	22	...[1]	14	3	84
Sarawak	129	229	2	378	6	744
North Borneo	25	105	3	283	39	455
TOTAL	3 887	4 139	916	675	209	9 826

Source: V. Purcell, *Malaysia*, p. 186 (London, Thames and Hudson, 1965): the figures for Brunei, omitted by Purcell, are taken from the 1960 Census.

[1] Included under 'Others'.

1963: the creation of Malaysia

The politicians of Singapore had always taken a realistic view of the illogical separation of the island from the mainland. Mr. Lim Yew Hock, Chief Minister of Singapore at the time, in a message to the Federation on its Independence Day said, 'it is in the prime interest of both peoples to merge into a single political unit... we of Singapore look forward to that day when our strength will be added to your strength and our separation will be ended'. The Federation responded with some caution, but the British Government had indicated that Singapore's independence rested upon its union with a larger entity, and when Mr. Lee Kuan Yew became Chief Minister he too pressed for union.

The economic factors of the situation appear to have had more influence on Singapore than on Malaya—what troubled Tengku Abdul Rahman, Prime Minister of Malay, was that while the pressure of Communist influences in Singapore had to be controlled, the mathematics of racial distribution showed that in a union of the two States the Chinese would represent some 3.8, and the Malays some 3.7 million in a total population of 8.5 million.

A possible solution appeared should the field be broadened to include the other countries with a Malay population now also approaching independence. Table 1 shows the basis of this thinking.

The Tengku's arithmetic apparently satisfied him, for on 26 May 1961, at the conclusion of what he had told the Foreign Correspondents Association at a luncheon in Singapore was to be an unimportant speech, he said: 'Malaya today as a nation realizes that she cannot stand alone and in isolation.

Outside of international politics, the national one must be broad-based. Sooner or later she should have an understanding with Britain and the peoples of the territories of Singapore, North Borneo, Brunei and Sarawak.'

It was to be sooner rather than later. Mr. Lee Kuan Yew enthusiastically endorsed the notion to a somewhat less enthusiastic electorate. In the course of twelve broadcasts he stressed the economic stability afforded by the rubber and tin production of Malaya which fortified Singapore's entrepôt trade—at the same time he stressed the need for local autonomy in education and labour affairs.

The two Prime Ministers succeeded in carrying their legislatures with them in seeking a mandate for a wider federation, and it remained to deal with the Borneo territories, under British sovereignty. The inevitable British reply was to appoint a Royal Commission which came out to ascertain the peoples' wishes in North Borneo and Sarawak.

The Sultan of Brunei was consulted independently, by Tengku Abdul Rahman, who obtained the unanimous approval of the Sultan-in-Council. The hostility of a section of the people, however, resulted in a subsequent rebellion lasting eight days which had to be dealt with by British forces. The leaders fled to Indonesia.

In Sabah and Sarawak the commission set out a number of general conditions within which federation appeared possible and reasonable. Eventually, in August 1962, the governments of Britain and Malaya decided that the federation might properly be brought into being a year later, but that during a transitional period a certain number of federal powers would in fact be reserved to the State governments.

There were also external difficulties. The Philippines, during early negotiations, had claimed ownership of certain parts of North Borneo, and although in 1961 the Foreign Minister of Indonesia, Dr. Subandrio, had stated to the United Nations that his government had no objections to the proposed federation, a sudden policy change followed fast upon the Brunei revolt and within a month the policy of 'confrontation' began to be put into effect. However, the situation appeared to have been dealt with at a meeting between President Soekarno and Tengku Abdul Rahman in Tokyo on 31 May and 1 June 1963, followed by discussions on 11 June between the three Foreign Ministers in Manila, when it was announced that agreement had been reached on the issues involved by federation, and that a proposal by President Macapagal of the Philippines for an even wider confederation of nations of Malay origin—the Philippines, Malaysia and Indonesia—a concept christened 'Maphilindo' had been sympathetically examined.

But the struggle to achieve federation was by no means over. The status of the Sultan of Brunei, oil revenues from Brunei, the financial contribution to the federation to be made by Singapore, and the question of a common market, all proved to be inflammable issues. Finally, on 8 July 1963, the formal agreement was ready for signature. The copies, the ceremonial pens and the ministering civil servants were in attendance, but not the Prime Minister of Singapore. At the twelfth hour new difficulties had arisen, this time over the cost of land required for the British bases in Singapore. Negotiations were hastly resumed. In the midst of this confusion the Sultan of Brunei sent word that he found himself unable to sign the agreement. Reluctantly the withdrawal of Brunei from the proposed federation was accepted. Mr. Lee Kuan Yew was persuaded by the Tengku to accept a compromise. Just before midnight the agreement was finally signed.

It appeared that now the formal ceremonies marking the wider federation might be carried out. However, Indonesia declared that the agreement reached had been without a United Nations inquiry as to the wishes of the peoples of Borneo, a condition of approval of federation stated to have been agreed upon in Manila. Great hostility was shown to the federation, and Malaysia was to be 'crushed'. Nevertheless a meeting in Manila, already arranged between the two Presidents and the Prime Minister of Malaya, scheduled for 30 July, did take place, the Tengku agreed to request the British Government to extend facilities to United Nations observers, and for the wishes of the people of North Borneo and Sarawak to be ascertained. Again the possibilities of Maphilindo were canvassed.

'Malaysia Day' was to have been 31 August; in view of the United Nations inquiry this was postponed until September, but the uneasy relationship between the parties to the federation was already displayed by the decision of Singapore, Sarawak and North Borneo—now to be known as Sabah—to celebrate their independence as originally planned, pending the formal proclamation of their union with the federation. Finally, the Secretary-General of the United Nations announced that the peoples of Borneo did in fact wish to engage in the enlarged federation; on 16 September the new States again celebrated and this time proclaimed their independence, and on the following day the three States of Singapore, Sarawak and Sabah were formally admitted to the Federation of Malaya, which now became the Federation of Malaysia.

But on the previous day the ambassadors of the Philippines and Indonesia their Presidents professing dissatisfaction, as they had throughout the process, with the United Nations inquiry, had been withdrawn. The break with the Philippines has since been largely healed: the Indonesian policy of 'confrontation' continues.

The separation of Singapore

On Monday, 9 August 1965 an amendment to the Federal Constitution marked the separation of Singapore from the federation and its first day as a sovereign State subsequently admitted to the Commonwealth. It is too early, and inappropriate to this study, to assess the full significance of the separation in its repercussions on the economic development both of the new State and the federation, but it may be suggested that among the contributory factors leading to the rupture were disagreement over the terms of a common market, over the financial contributions to be made by Singapore to the federal exchequer and to the development of Sabah and Sarawak, with the financial policy of the federal government, and the clash of concepts and temperaments between the leaders concerned.

Bases of the federation

In general terms, the Constitution of Malaysia follows the earlier federal constitution of Malaya, providing for fourteen sovereign member States[1] voluntarily abrogating many powers to a federal democratic monarchy.

The Paramount Head of the Federation of Malaysia, the Yang di-Pertuan Agong, is elected by the Conference of Rulers and Governors (of Malaya) and holds office for five years.

The Parliament of Malaysia is bicameral. Of the 159 elected members of the Lower House (House of Representatives) 104 were to come from the eleven States of Malaya, 15 from Singapore, 24 from Sarawak and 16 from Sabah—for the first two, from single-member universal adult franchise constituencies, for the last two by election, for five years, from their respective State Legislative Assemblies. The Senate had a membership of 60, 28 elected by State Legislature, 32 appointed by the Yang di-Pertuan Agong: its powers are mainly those of delay.

Each constituent State has a single-chamber Legislative Assembly, and subjects for legislation are set out in a Federal List, a Government List and a State List. Residual power lies with the State—but each State, though sovereign, has tranferred absolutely some of its functions to the federal authority. The Federal List includes external affairs, defence, internal security including police, civil and criminal law, federal citizenship, finance, trade, commerce and industry, communications, works and power, education, health and labour, and developmental planning and its financial requirements. The State List includes Muslim law, land, agriculture and forestry, local government, State works, and the machinery of State government. All constitutions are written, and prescribe a limited monarchical system of government based on parliamentary democracy, by which the Ruler is required to Act on the advice of his government.

For local purposes Malaya is divided into administrative districts; Sabah into four residencies and Sarawak into five divisions.

'Islam is the religion of the federation; but other religions may be practised in peace and harmony in any part of the federation.'[2]

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1. Originally Pahang, Trengganu, Kedah, Johore, Negri Sembilan, Kelantan, Selangor, Perak, Perlis, Penang, Malacca, Singapore, Sabah, Sarawak.
2. *Malaysia: Report of the Inter-Governmental Committee, 1962*, p. 5 (Federation of Malaya, Government Press, 1963).

The constitutional position of education

It will be noted that education is shown as a federal responsibility. A supplement to the State schedule had reserved all educational matters to the State Government of Singapore: in practice this still remains the position in Sabah and Sarawak. In 1962 an Inter-Governmental Committee representing the British, Malayan, North Borneo and Sarawak Governments was appointed to work out safeguards for North Borneo and Sarawak within the federation, and their report stated in certain respects, 'the requirements of the Borneo States could appropriately be met by undertakings or assurances to be given by the Government of the Federation of Malaya rather than by constitutional provisions. . .'.[1]

It was agreed that:

'(a) Although Education (item 13*a* of the Federal List in the Ninth Schedule) will be a federal subject, the present policy and system of administration of education in North Borneo and Sarawak (including their present ordinances) should be undisturbed and remain under the control of the government of the State until that government otherwise agrees. In particular: (i) the present policy in the Borneo States regarding the use of English should continue; (ii) knowledge of the Malay language should not be required as a qualification for any educational opportunity until such time as the State Government concerned considers that sufficient provision has been made to teach Malay in all schools in the State; (iii) there should be no application to the Borneo States of any federal requirements regarding religious education; (iv) State provisions for the special position of the indigenous peoples should continue to apply; (v) the Directors of Education in the Borneo States, who would be officers serving in federal posts and responsible to the Federal Minister of Education through the Ministry of Education, should carry out much the same duties as they do at present in consultation with the State Government concerned; (vi) to enable local wishes to be fully consulted and taken into account as far as possible, the Directors of Education of the Borneo States should continue to be advised by the respective existing Boards of Education and the local Education Committees; and (vii) in the case of Sarawak the local authorities should continue to be used as agents for primary education; and

(b) When expansion of higher education facilities was being considered by the Malaysian Government the requirements of the Borneo States should be given special consideration and the desirability of locating some of the institutions in the Borneo States should be borne in mind.'[2]

Thus the existing policy and administration of education are being left undisturbed until and unless State and Federal Governments agree to changes.

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[1] ibid., p. 4.

[2] ibid., Chapter III, para. 17.

The financing of education, however, remains with the Federal Ministry, and it is difficult not to believe that this is an effective means of control.

The official language policy, which repeats the provision of the earlier Malayan Constitution with safeguards for the new members, is summarized by Noss in his consultant report:[1]

'The basic outlines of language policy were laid out in the original constitution of the Federation of Malaya (1957), Article 152: "The national language shall be the Malay language and shall be in such script as Parliament may by law provide.[2] Provided that (a) no person shall be prohibited or prevented from using (otherwise than for official purposes), or from teaching or learning, any other language". Other provisions of this Article were authorization for the use of English in Parliament for a period of at least ten years after independence (i.e., until 1967) and for all other official purposes except the taking of evidence in courts. (English was prescribed, not merely authorized, as the written language of Bills in Parliament.)

'Seven years later, in 1964, all the provisions of this Article are being scrupulously honoured. Both Malay and English remain the official languages of the country—Malay supported, English permitted. There has been no suppression of the use of Chinese and Indian languages for unofficial purposes; in fact, the teaching of these other languages was federally subsidized through the secondary level until 1956, and is still subsidized at the primary level. The past trend of all official acts has been a gradual phasing out of support for the non-official languages in favour of the two official ones, rather than an abrupt rejection of the former. The future trend is equally clear: the phasing out of English as well. Perhaps acting in response to the original constitutional ten-year period (which was a minimum rather than a maximum, however) the intention is to establish Malay as the sole official language by 1967 (except in the two Borneo States, where an additional extension of ten years is contemplated).'

Finally, it is interesting to note the constitutional provision for 'safeguarding the special position of the Malays':

'153.[3] (1) It shall be the responsibility of the Yang di-Pertuan Agong to safeguard the special position of the Malays and the legitimate interests of other communities in accordance with the provisions of this Article.

'(2) Notwithstanding anything in this Constitution, but subject to the provisions of Article 40[4] and of this Article, the Yang di-Pertuan Agong shall exercise his functions under this Constitution and federal law in such manner as may be necessary to safeguard the special position of the Malays and to ensure the reservation for Malays of such proportion as he may deem reasonable of positions in the public service (other than the public service of a State) and of scholarships, exhibitions and other similar educational or training privileges or special facilities given or accorded by the Federal Government and, when any permit or licence for the operation of any trade or business is required by federal law, then, subject to the provisions of that law and this Article, of such permits and licences.

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[1] See Volume III, Part 2, of this study.

[2] It provided for Rumi, or Roman, rather than for Jawi, an Arabic-type script.

[3] The Constitution refers back to Article 38 (5), which provides that the Conference of Rulers shall be consulted before any change in policy affecting administrative action under Article 153 is made.

[4] Article 40 requires the Yang di-Pertuan Agong to act in accordance with the advice of the Cabinet.

'(3) The Yang di-Pertuan Agong may, in order to ensure in accordance with Clause (2) the reservation to Malays of positions in the public service and of scholarships, exhibitions and other educational or training privileges or special facilities, give such general directions as may be required for that purpose to any Commission to which Part X[1] applies or to any authority charged with responsibility for the grant of such scholarships, exhibitions or other educational or training privileges or special facilities; and the Commission or authority shall duly comply with the directions.'

LAND AND PEOPLE

The Federation of Malaysia embraces two similar but separated land masses, the Malay peninsula and the north-western coastal area of the great island of Borneo. The Malay peninsula covers 51,000 square miles extending south-south-west from the Kra isthmus of Thailand to the channel separating Johore from the island State of Singapore. The Borneo States of Sabah and Sarawak extend over 70,000 square miles; the Sultanate of Brunei forms a double coastal enclave of 2,200 square miles at the extreme north of Sarawak. Some 400 miles of the South China Sea separate Kuching, the capital of Sarawak, from Johore Bahru lying on the mainland opposite Singapore.

The Malay peninsula, in shape an elongated diamond on a slightly tilted axis, consists of alluvial plains with a total coastline of 3,000 miles on the eastern and western fringes of a spectacular mountainous spine running south-south-west in a series of parallel ridges which finally peter out into the waterlogged levels of Johore, the most southerly State of the Malay Federation. The west-coast swamps have been largely drained, and on this coast are to be found most of the Malayan rice crop, more than 80 per cent of the rubber acreage and most of the productive tin mines. The shallow and protected channel between the west coast and the island of Sumatra has offered a sheltered passage to shipping between the West, India and China from time immemorial, and forms part of one of the great trade routes of the world, dominated by the port of Singapore, which has assumed the role played in earlier and more turbulent times by Malacca, further north. The east coast, subject to temporary but extreme violence from the north-east monsoon, is not suitable for shipping, but presents a succession of palm or casuarina-fringed sandy bays, from which a savannah-like country rises into the central mountain ranges. It is a relatively undeveloped area, though the tourist appeal of its golden turtle-thronged beaches is now being appreciated and exploited. The greater part of the interior is covered by an umbrella of tropical rain forest.

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[1] Part X in this chapter deals with the public services and public commissions.

The States of Sarawak (48,300 square miles) and Sabah (29,400 square miles), particularly Sabah, are less focally situated; the main streams of cultural and economic development flowing through Malaya have largely passed them by, but there is a strong topographical as well as ethnical link with the mainland. From an alluvial coastal belt varying in depth from one to a hundred miles, a rolling hinterland merges into a sharply rising mountainous interior, the eternally cloud-capped peaks rising to over 5,000 feet. The greater part of the two States is still covered by dense foliage from the rain forests which thin out only on the higher peaks. Numerous rivers rise in the mountain ranges, plunging through precipitous gorges and encountering numerous rapids until finally they meander to the sea across the coastal plain, forming the main highways, with the sea itself, of the whole area.

In 1957 Malaya (excluding Singapore) had fifteen towns with a population of over 30,000, including Kuala Lumpur, Georgetown (Penang) and Ipoh with over 100,000 inhabitants. In 1962 Sarawak had Kuching (51,000) and Sibu (30,000), and Sabah, Jesselton (21,500) and Sandakan (29,300) as evidence of commercial development.

There are very few aspects of life in Malaysia which do not reflect the multiracial character of the population of the federation—dress, customs, shops, schools, mosques, churches and temples, newspapers, occupations—these are only the visible indications of wide differences of religion, language, origin, tradition and temperament which offer a major challenge to the concept of a united Malaysia.

The numerical distribution of the major racial groups in 1960 when the federation was first mooted has already been shown in Table 1 above. Absolute figures showing a more detailed breakdown of the population are to be found in the 1957 (Malaya and Singapore) and 1960 (Sabah and Sarawak) Census Reports; they indicate an even wider ethnic diversity which is certainly significant from an educational point of view, particularly in respect of the variety of vernaculars from the Western Malayo-Polynesian sub-family.

The following series of tables[1] (2.1-2.4) show the increases for the main racial groups in Malaya since the previous census in 1947. Two supplementary tables (2.5, 2.6) based on the Census Report show the distribution of 'Others' in 1957, and for convenience summarize the individual tables.

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[1] *Population Census of the Federation of Malaya, 1957, Report No. 14*, pp. 12-14 (Kuala Lumpur, Department of Statistics, 1960).

TABLE 2.1. Malaysians by specific community, 1947 and 1957

Specific community	1947		1957		Increase (per cent)
	No. (thousands)	%	No. (thousands)	%	
Malays	2 127.3	87.6	2 802.9	89.7	31.8
Indonesians	265.8	10.9	281.2	9.0	5.8
Aborigines	34.7	1.4	41.4	1.3	19.1
Malaysians	2 427.8	100.0	3 125.5	100.0	28.7

TABLE 2.2. Aborigines by ethnic group, 1947 and 1957

Ethnic group	1947	1957
Negrito	2 931	841
Jakun	7 429	4 213
Semai	7 227	12 451
Semelai	1 165	2 821
Temiar	6 710	9 408
Other	9 255	11 626
TOTAL	34 717	41 360

TABLE 2.3. Chinese by specific community, 1947 and 1957

Specific community	1947		1957		Increase (per cent)
	No. (thousands)	%	No. (thousands)	%	
Hokkien	538.2	28.6	740.6	31.7	37.6
Hakka (Khek)	397.4	21.1	508.8	21.8	28.0
Cantonese	484.0	25.7	505.2	21.7	4.4
Tiechieu	207.0	11.0	283.1	12.1	36.7
Hainanese	105.5	5.6	123.0	5.3	16.6
Kwongsai	71.1	3.8	69.1	3.0	−2.8
Hockchiu	38.6	2.0	46.1	2.0	19.4
Hengkwa	9.6	0.5	11.9	0.5	23.8
Hokchia	6.4	0.3	9.8	0.4	52.1
Other	26.7	1.4	34.3	1.5	28.6
TOTAL	1 884.5	100.0	2 333.8	100.0	23.8

TABLE 2.4. Indians by specific community, 1947 and 1957

Specific community	1947		1957		Increase (per cent)
	No. (thousands)	%	No. (thousands)	%	
Indian Tamil	418.7	78.9	556.5	78.7	32.9
Malayali	34.6	6.5	51.2	7.2	47.8
Telegu	23.7	4.5	27.1	3.8	14.1
Others	53.5	10.1	72.4	10.2	35.2
TOTAL	530.6	100.0	707.1	99.9	33.3

TABLE 2.5. 'Other' communities, 1957

Communities	Number	Percentage of group
Eurasian	11 312	9.2
Ceylon (Tamil)	24 616	19.2
Other Ceylonese	3 314	2.7
Pakistani	10 922	8.8
Thai	21 180	17.2
Other Asian	17 571	14.2
British	28 026	22.8
Other European	3 032	2.5
Others	3 364	2.7
TOTAL	123 337	100.0

TABLE 2.6. Population of Malaya by community, 1957: Summary

Community	Number	Percentage of total population	Major groups (per cent)
Malays	2 802 869	44.6	49.8
Indonesians	281 233	4.5	
Aborigines	41 360	0.7	
Chinese	2 333 756	37.2	37.2
Indians	696 186	11.1	11.3
Pakistanis	10 922	0.2	
Ceylonese	27 930	0.4	1.7
Thais	21 180	0.3	
British	28 026	0.4	
Others	35 279	0.6	
TOTAL	6 278 758	100.0	100.0

TABLE 2.7. Sarawak: ethnic composition of the population, June 1962

Cultural group	Population	Percentage of total
Chinese	244 435	31.5
Sea Dayak	241 544	31.1
Malay	136 232	17.5
Land Dayak	60 890	7.8
Melanau	45 976	5.9
Other indigenous	39 266	5.1
Other non-indigenous	6 914	0.9
European	1 737	0.2

Source: *Sarawak: Annual Report 1962*, p. 11 (Kuching, Government Printer).

The reports for Sabah and Sarawak also provide a breakdown by race, and these figures have been adjusted, in the case of Sarawak, up to June 1962 (see Table 2.7).

For Sabah a similar table, taken directly from the 1960 Census Report, offers a comparison with the 1931 and 1951 figures (see Table 2.8).

With different census years it is impossible to obtain absolute figures for the federation as a whole, but the Federal Government has calculated (the figures are provisional) the population of the whole federation as on 31 December 1964: Table 2.9 is a condensed version of this estimate. The table has been rearranged to show both the present and the original composition of Malaysia in order to emphasize the effect of separation in terms of the withdrawal of Chinese population, no longer the largest single ethnic group.

The general picture is of the dominance of the Malay and Chinese communities, 79 per cent of the whole; the importance of the Indian and Pakistani group; and the heterogeneous nature of the remainder of the population: it is a combination which may be expected where the land and sea routes of South and South-East Asia and the Far East meet.

The figures for each State also reveal a number of points of interest. The aboriginal population of Malaya, some 41,000 nomads, either living as hunters and food-gatherers in the north, or as primitive settlers in the south, offers a problem that is social, not political. There is no reference to the aborigines in the *Malaysia Official Year Book* for 1963, but a special Department of Aboriginal Affairs with a Commissioner is charged with their welfare. The percentage increase from 1947, for which it seems likely the total was heavily under-counted, to 1957 is only 19 per cent—hence below the average of 28 per cent for the population as a whole. The percentage distribution of the main races in 1921 was: Malays, 54 per cent; Chinese, 29.4 per cent; Indians, 15.1 per cent; and 'Others', 1.5 per cent; the changes shown by the last column of Table 2.6 are due to heavy Chinese immigration,

TABLE 2.8. Sabah: ethnic composition of the population, June 1962

Community	1951		1960		Percentage increase or decrease 1931-51	Percentage increase 1951-60
	Number	Percentage of total population	Number	Percentage of total population		
Kadazan	117 867	35.3	145 229	32.0	+ 6.7	+ 23.2
Murut	18 724	5.6	22 138	4.9	−23.4	+ 18.2
Bajau	44 728	13.4	59 710	13.1	+31.2	+ 33.5
Other indigenous[1]	61 690	18.5	79 421	17.5	+70.5	+ 28.7
Chinese	74 374	22.2	104 542	23.0	+48.6	+ 40.6
European	1 213	0.4	1 896	0.4	+87.5	+ 56.3
Others	15 545	4.6	41 485	9.1	−29.9	+166.9
TOTAL	334 141	100.0	454 421	100.0	+20.4	+ 36.0

Source: *State of Sabah Annual Report, 1963* (Jesselton, Government Printer).

[1] Including Malays.

TABLE 2.9. Estimated population by ethnic origin as at 31 December 1964 (estimated population at mid-1964 and migrational surplus and excess of births over deaths)

State	All races	Malays[1]	Chinese	Indians and Pakistanis	Others
States of Malaya	7 919 055	3 963 549	2 918 340	884 025	153 141
Sabah	506 628[2]	...	...	...	(506 628)[3]
Sarawak	819 808[2]	149 216	262 615	2 712	405 265[4]
Malaysia	9 245 491	4 112 765	3 180 955	886 737	(1 065 034)[3] 558 406
Singapore	1 844 200	262 400	1 383 000	152 100	46 700
TOTAL ON FEDERATION	11 089 691	4 375 165	4 563 955	1 038 837	(1 111 734) 605 106

Source: Department of Statistics, Kuala Lumpur. Provisional table, September 1965.

... Data not available.

1. Includes Aborigines and Indonesians living in the States of Malaya.
2. As at 30 June 1964.
3. An early breakdown of the population of Sabah may be found in Table 2.8. The total population of Sabah is repeated in brackets in lines 2, 4 and 7 of the last column in order that the total of the broken-down figures should balance with the 'All races' total.
4. Including indigenous people.

subsequently restricted. The Chinese community is chiefly concentrated in urban areas (64 per cent of all areas, as contrasted with 23 per cent Malays and 11 per cent Indians). The commercial community is very largely Chinese, from businessmen of high international standing to storekeepers and petty clerks, though the Indian trader is also well represented. The Chinese also work in the tin mines of the west and north; the majority of Indians are to be found as tappers in the larger rubber plantations. The Malays are mainly to be found along the coasts, growing rice and rubber and fishing. Malays also form the bulk of the civil service of Malaysia. It is difficult not to form the conclusion that, though Kuala Lumpur is the federal capital and Malaysia an essential though enlarged concept, there remains close to every Malay's heart an atavistic affection for the *kampong*[1]—or perhaps the *istana*[2]—in the State to which his primary loyalty is still owed.

In Sabah the largest racial group, the Kadazans, are rice growers, living chiefly on the west coast and the adjacent alluvial plains: the Bajau, together with a number of related tribes, are a Muslim people descended from the pirates who once infested the South China Sea: they are now fisher-folk, rice growers and cattle farmers, as indeed are most of the indigenous peoples. The Muruds, however, come from, and may still live in, the almost inaccessible interior: they still practise shifting cultivation on a seven-year cycle, and are great hunters.

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[1] Village.

[2] Palace—the Sultan's court.

The Chinese, whilst mainly engaged in agriculture and commerce, supply most of the artisans, clerks and shopkeepers: on the east coast their connexions are mainly with Hong Kong, on the west coast with Singapore. The majority shown under 'Others' are Indonesians, recruited some thirty years ago to work on the rubber plantations; some are more recent immigrants seeking employment.

Forty per cent of the population is to be found on the west coast, where there is a density of 66 persons per square mile: in the interior this figure shrinks to as little as 2 per square mile. Eighteen per cent of the population was aged under 5 in 1960, and 50 per cent under 19: it remains a very young population.

In Sarawak, the Chinese form the largest single ethnic group. Many are engaged in trade and commerce; a number are smallholders cultivating spices and rubber. Next in size are the Ibans (Sea Dayaks), who together with the Land Dayaks and most of the other indigenous peoples dwell in inland long-houses. They are all dry rice planters on a system of shifting cultivation, but are steadily producing more areas of high-yielding rubber. The Malays and Melanaus grow wet rice, and the latter in particular, sago; many are fishermen. A growing number are moving to the outskirts of the towns, and many Malays are to be found in salaried or wage-earning government employment.

Population is very scarce in the eastern part of the country, while it rises to over 25 persons per square mile in the south-west: the average density is about 16.

It will thus be seen that the 10 million people of the federation are roughly composed half of Malays and other indigenous peoples, half of other ethnic groups, mainly Chinese with a significant Indian element: the proportions of the mix vary considerably in the different territories.

A study of the federation made in 1963 by the World Bank,[1] indicates that the total population is growing at over 3 per cent per annum. This level has just been reached in Borneo, but had been far exceeded in Singapore, where, fortified by an annual increase of 0.9 per cent through immigration, it had reached 4.4 per cent. More recent official statements have, however, indicated that this figure is falling following upon a successful campaign for family planning. The Finance Minister of Singapore, speaking in November 1964, stated that the crude birth rate had dropped from 41.3 per 1,000 in 1958 to 33.5 in 1963, and claimed that the annual population increase had fallen to 2.2 per cent.[1] The Malayan crude rates for 1962 were higher: 42.9 per 1,000 for Malays, 37.3 for Chinese, 41.5 for Indians and Pakistanis; with an overall rate of 40.3. Infant mortality among Malays was 81 per 1,000 live births, as contrasted with 38 for the more urban Chinese.

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[1] *Report on the Economic Aspects of Malaysia*, by a Mission of the International Bank for Reconstruction and Development (Kuala Lumpur, Government Printer, 1963). This document, widely referred to as the Rueff Report—the chairman of the mission was Mr. Jacques Rueff—has been heavily used in the following section on the economic background of the federation.

THE ECONOMY AND THE FIRST MALAYSIAN PLAN

The Malaysian territories are relatively prosperous, *per capita* income levels in 1965 being about $950[2] in Malaya, $860 in Sabah and $740 in Sarawak, with a federation average of $960. This is more than twice the *per capita* income of either Thailand or the Philippines, though with the exception of the Kuala Lumpur and Penang areas the upper range of incomes in the federation is not so great.

Economic expansion has been considerable in the last twelve years, the average annual growth rate of the real gross domestic product between 1960 and 1965 being 6.4 per cent (the average for developing countries has been estimated at 5 per cent). The growth rate of real national income was 5.8 per cent, a rise in tin prices being more than offset by falls in timber and rubber prices, and the growth of *per capita* income at the rate of 2.7 per cent is, in view of the rapidly increasing population, remarkably high.

Private investment has been most active in the planting or replanting of rubber and oil palm, in the development of forestry (particularly in Sabah), and in manufacturing (almost entirely in Malaya). Direct incentives in the form of planting loans, crop subsidies, tax exemption for new industries and industrial site expansion have offered a useful stimulus, export incomes have been high, and government purchasing considerable.

In the public sector, while there has been a considerable increase (more than double) of expenditure on services such as education, health, and low-cost housing, the main expenditure has been on land development—the expansion of smallholding settlements, replanting grants, an increased number of feeder roads, and the development of research in rubber (though it is not always easy to distinguish between the work accomplished by the internationally recognized Rubber Research Institute of Malaysia and that carried out by the research divisions maintained by the larger planting groups). The budget of Malaysia is now based upon deficit financing, an interesting change from the colonial pattern of the balanced budget.

The two main elements in the export economy of Malaya are rubber and tin, which together amounted in 1965 to 55 per cent of the federation's exports, and 30 per cent of GNP. During the last five years the price of natural rubber on the world market has declined considerably, due to the expanding production and use of synthetic rubber. The price has fallen from 107 cents per pound in 1960 to 69 cents in 1965 with a yearly average price of 74 cents, and the fall in prices has more than offset the expansion in production generated by the fruition of earlier planting programmes and continued research in breeding. Other elements which declined were iron ore (after 1963), copra and coconut oil. Value added from the entrepôt trade also declined with the cessation of imports of rubber and tin from Indonesia.

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[1] *Far Eastern Economic Review 1965 Year Book*, p. 210.

[2] In this profile all dollar references are to Malaysian dollars: M$3 = U.S.$1.

In contrast, the price of tin rose from $6,623 per ton in 1960 to $11,760 in 1965, reflecting a world shortage; but despite a massive increase in the number of mines production has dropped since 1963, and reserves are running down. Other expanding exports are timber, oil palm and pineapple products, while the value of services has been greatly increased by expenditures on their armed forces by Commonwealth Governments.

In Sabah the phenomenal growth of timber exports—round timber exports grew by about 95 per cent and the value of forest products doubled—produced an annual growth rate of 6.4 per cent, but in Sarawak, whose main export is rubber produced by smallholders, the volume decreased as prices fell, and rising prices for pepper, sago flour and services no more than offset the decline.

The net result in the federation as a whole is that the total value of exports has remained static since 1960, and it was left to a sharp increase in domestic consumption to expand production.

There remain a number of other major obstacles to growth which are not new, but whose impact is becoming steadily more pressing. The present population growth rate of 3 per cent has resulted in a large annual increase in the number of job seekers save in Sabah, where the traditional pattern of shifting cultivation and subsistence living has had the contrary effect of necessitating the importation of plantation labour. The growing population has also made it difficult to maintain services, particularly education and health, at their existing level, and the necessary improvement of standards of living is making increasingly heavy demands on finance and on trained personnel. An inability to do any more than keep pace with existing services is a serious drawback to ameliorating particularly unsatisfactory social conditions in the hinterland of the Borneo territories and in the north and east of Malaya, and in Sarawak the increased population has led to the overworking of land in areas of shifting cultivation.

The heavy dependence of the economy upon rubber and tin has already been mentioned: it is a source of considerable danger. If the development of the technology of synthetic rubber production maintains its present pace the production of natural rubber would, it appears, still give a reasonable return if high-yielding varieties were grown, but clearly, while replanting must continue, a wide diversification at a faster pace is a necessary factor for safety.[1] Unfortunately, adequate alternatives are not easy to find, but while the oil palm appears at the moment to fill this requirement over a long-term period, it may surely in its turn become vulnerable to synthetics, and there is considerable competition from other oil-palm growing countries.

Added to this situation is the growing depletion of the tin reserves, while the entrepôt trade, now reduced to Penang and in even greater competition with Singapore, is also facing a decline.

Another problem of a different nature is the scarcity throughout the federation of trained personnel, particularly in the Borneo territories, to carry out the many tasks of social and economic development.

It may, however, still be accepted that the process of federation, however weakened by the separation of Singapore—and this is a most serious loss—has assisted in developing a climate favourable to the development of the economies of the three remaining constituent members.[2]

In the first place, the economy has been enlarged and diversified and the danger of relying upon a few traditional sources of income, subject to serious fluctuations when world prices change, will be lessened through the potential of an expanded domestic market, an essential compensation to offset the inertia of Malaya's export trade. Customs requirements have now, with very few exceptions, been standardized throughout the federation and a free flow of trade is anticipated.

This assistance to the development of manufacturing industries in Malaya through a widening domestic market is, however, weakened by the situation *vis-à-vis* the more rapid growth of Singapore as an industrial centre, and the rationalization of industrial production which would have accompanied federation is now dissipated into a duplication of manufactures—car assembly, paint, tyres, veneers, batteries and a dozen others. The immediate reaction is for both states to hedge themselves round with tariff walls, the entrepôt trade of Singapore is diminished, the export facilities of Malaya are in danger, and Malayan expansion in overseas markets is threatened by the more experienced entrepreneurs and businessmen of Singapore.

It is in this situation that the First Malaysian Plan (1966-70) has been formulated[3] as successor to, and an enlargement upon, the first two Malayan Development Plans (1956-60 and 1961-65) which were largely based upon surveys made by teams from the International Bank for Reconstruction and Development (the World Bank).

The formulated objectives of the plan include: (a) increased well-being for the rural and low-income groups by raising their productivity and thus increasing their income-earning capacity; (b) the creation of new jobs to provide employment for the growing number of prospective wage earners (15 per cent increase in five years); (c) the lessening of dependence on rubber and tin by stimulating new kinds of economic activity; (d) the provision of education and training that will equip the Malaysians to participate in economic and social development; (e) the organization of a programme of family planning to slow the rate of population growth; (f) the opening up of new land, and the development of the infrastructure of power and communications thus called for.

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[1] The mono-crop economy presents an interesting parallel in its essentials with the sugar industry of many of the West Indies, though the sugar now produced from beet can scarcely be considered synthetic!

[2] See *Report on the Economic Aspects of Malaysia*, op. cit.

[3] *First Malaysian Plan, 1966-1970* (Kuala Lumpur, Government Printer, 1965).

To counteract the stagnation of the export economy, and to safeguard foreign exchange, new measures, in addition to raising the production of rubber, are needed for expanding production for the domestic market, or replacing imports with locally produced goods. These are to include a vigorous programme of prospecting for mineral wealth, the development of the oil palm industry, the diversification of agricultural products: bananas, sago, pineapple, citrus and cashew nuts. And, of course, assistance to the development of local industries.

It is hoped to reduce the drain on currency caused by the importation of foodstuffs such as rice and sugar, while already in the industrial field petroleum refineries, breweries, flour and sugar mills, cigarette and tobacco factories, cement plants, soap and margarine factories and car assembly plants are all playing their part in plugging this gap.

The problems of diversification may be illustrated by Table 3 which shows the origin of gross domestic product in 1960 and 1965.

The dominance of agriculture, and in particular rubber, is plainly shown, together with the slow rates of growth, save for forestry and fisheries (which together only produce one-sixth of the value of rubber). The growth rates of manufacturing and construction, 11.1 and 17.9 respectively, are of course encouraging, but the total contribution of manufacturing is only 11 per cent, and of construction only 5 per cent, of total production values.

In Sabah a growth rate of over 7 per cent is accounted for by the expansion of the timber industry: rubber has been stagnant and rice has moved only slowly (2.8 per cent). The infrastructure of roads, power, water, port facilities and social services has been considerably developed since 1960, but the State suffers from a considerable labour shortage, particularly since immigration from the Philippines and Indonesia, needed to operate and develop timber, engineering and construction, has been halted by political circumstances.

The timber trade has also developed in Sarawak, but to a much smaller extent, and the basic problem is the wastefulness of an almost universal pattern of shifting cultivation. A transformation of the agricultural pattern of the State is essential to any general rise in standards of living.

Against this background, the distribution of public expenditure proposed in the Malaysian Plan may be considered (see Table 4).

TABLE 3. Malaya: gross domestic product by industry of origin, 1960 and 1965 (1960 prices)

Origin	1960		1965 (preliminary)		Annual growth rate (percentage)
	M$ million	Percentage of total	M$ million	Percentage of total	
Agriculture, forestry and fisheries	1 976	38	2 406	34	4.0
Rubber	1 233	24	1 504	21	4.0
Agriculture and livestock	568	11	647	9	2.6
Forestry	85	2	125	2	8.0
Fisheries	90	2	130	2	7.5
Mining and quarrying	306	6	382	5	4.5
Manufacturing	453	9	766	11	11.1
Construction	158	3	360	5	17.9
Electricity, water and sanitary services	70	1	123	2	11.9
Transport, storage and communications	189	4	247	3	5.5
Wholesale and retail trade	817	16	1 100	16	6.1
Banking, insurance and real estate	71	1	116	2	10.3
Ownership of dwellings	245	5	305	4	4.5
Public administration and defence	339	6	425	6	4.6
Other services	596	11	853	12	7.4
Gross domestic product at factor cost	5 220	100	7 083	100	6.3

Source: *First Malaysian Plan*, op. cit., p. 37, Table 2-11.

TABLE 4. Malaysia development expenditure targets (M$ million)

Sector	Development expenditure, 1966-70 (target)				
	Malaya	Sabah	Sarawak	Malaysia	Percentage
Agriculture and rural development	900.2	55.0	131.4	1 086.6	23.9
Agriculture	166.5	11.7	89.3	267.5	5.9
Animal husbandry	28.0	2.1	3.7	33.8	0.7
Fisheries	17.0	1.3	4.0	22.3	0.5
Forestry	10.0	1.1	1.3	12.4	0.3
Drainage and irrigation	319.2	7.0	6.5	332.7	7.3
Land development	335.0	27.8	13.1	375.9	8.3
Rural credit and marketing	19.5	4.0	13.5	37.0	0.8
Emergency contract personnel services	5.0	—	—	5.0	0.1
Mining	1.3	—	—	1.3	—
Mines Department	0.5	—	—	0.5	—
Geological Survey Department	0.8	—	—	0.8	—
Industrial development	110.3	1.7	2.5	114.5	2.5
Malaysian Industrial Development Finance Ltd.	16.0	—	—	16.0	0.4
Industrial estates	14.0	—	—	14.0	0.3
National Institute for Scientific and Industrial Research	5.0	—	—	5.0	0.1
Standards Institute	0.1	—	—	0.1	—
National Productivity Centre	0.2	—	—	0.2	—
Federal Industrial Development Authority	5.0	—	—	5.0	0.1
Majlis Amanah Ra'ayat (Rural Industrial Development Authority)	70.0	—	—	70.0	1.5
Borneo Development Corporation Ltd.	—	1.7	2.5	4.2	0.1
Transport	365.3	68.8	111.9	546.0	12.0
Roads	255.5	54.2	79.8	389.5	8.6
Railways	20.0	1.3	—	21.3	0.5

Civil aviation	9.0	6.0	6.5	21.5	0.5
Ports	80.8	7.3	25.6	113.7	2.4
Communications	156.6	25.6	23.3	205.5	4.5
Telecommunications	105.0	19.0	18.5	142.5	3.1
Broadcasting	42.3	6.0	4.8	53.1	1.2
Posts	9.0	0.6	—[1]	9.6	0.2
Meteorological services	0.3	—	—	0.3	—
Utilities	695.0	58.0	33.3	786.3	17.2
Electricity	545.0	15.0	24.3	584.3	12.8
Water	150.0	43.0	9.0	202.0	4.4
Education and training	368.0	27.2	45.6	440.8	9.7
Health and family planning	150.4	18.0	21.0	189.4	4.2
Social and community services	279.0	16.5	19.6	315.1	6.9
Housing	173.2	7.4	7.5	188.1	4.1
Major sewerage schemes	21.6	—	—	21.6	0.5
Fire services	4.6	—	—	4.6	0.1
Culture, youth and sports	11.6	0.4	0.4	12.4	0.3
Community services	55.5	8.3	11.0	74.8	1.6
Welfare	8.7	0.4	0.7	9.8	0.2
Aborigines	3.8	—	—	3.8	0.1
General administration	87.9	26.9	11.6	126.4	2.8
Defence	502.0	53.5	44.5	600.0	13.1
Accommodation	150.0	53.5	44.5	248.0	5.4
Equipment	352.0	—	—	352.0	7.7
Internal security	97.6	22.4	19.0	139.0	3.0
Accommodation	55.1	22.4	19.0	96.5	2.1
Equipment	42.5	—	—	42.5	0.9
TOTAL	3 713.6	373.6	463.7	4 550.9	100.0

Source: summarized from *First Malaysian Plan*, op. cit., pp. 69-70, Table 4-1.

[1] Allocation for Postal Services is included under that provided for Telecommunications.

The total public investment needed is calculated at $4,550 million: the target for private investment is set at $5,160 million. Excluding defence and security expenditures, the plan allots $3,110 to Malaya, $300 million to Sabah and $400 million to Sarawak: this is crudely equivalent to 81.6 per cent of the social and economic expenditure on 85.6 per cent of the total population, 7.9 per cent on the 7.9 per cent in Sabah, and 10.5 per cent on the 8.9 per cent of the population in Sarawak. Population figures, of course, begin to lose some significance when related to comparative needs in terms of the development of the infrastructure, economic potential, and the ability to implement development programmes and meet the hidden recurrent expenditure that many plans conceal. All the figures quoted above, however, represent increases of between 3.2 to 5.7 per cent over the development figures of the last five years: with the leeway to make up in the Borneo territories their allocation is perhaps not excessive.

The main projects and measures contemplated by the plan may be very succinctly summarized as follows.

Agriculture and rural development ($1,086.6 million: 23.9 per cent of total expenditure). The main objective in agriculture is the more productive use of land. More than one-third of the total expenditure ($376 million) is to be devoted to land settlement and development schemes, and an almost equally large amount to drainage and irrigation. Crop subsidization accounts for $216 million, $160 million for rubber replanting and $56 million for subsidies to other crops, as an incentive to diversification. Less costly, but no less valuable, projects include research into fisheries, silviculture and animal husbandry, and support for rural credits, co-operative and marketing schemes. Applied research, indeed, figures prominently in the programme—an animal production institute for research into pastures and the physiology of animal maturation is to be established; and Penang is to have a fisheries college.

Agricultural education[1] is to be geared to the production of one professional specialist to every 6,000 acres, supervising a team of three field supervisors (Category II personnel) and twelve extension workers (Category III), which implies a field worker for every 500 acres. This programme necessitates a considerable expansion of training facilities, including the enlargement both of the Faculty of Agriculture at the University of Malaya and of the College of Agriculture at Serdang (see below, 388-9) and the establishment of a second agricultural college on the east coast of Malaya, which would serve an entirely rural and largely underdeveloped region of Malaya. Extension workers will presumably be produced from the specialist agricultural schools proposed as part of the higher secondary provision following upon the Lower Certificate of Education examination at the close of 'comprehensive education' under the new Malay system (see below, pp. 323-6), though it may possibly be questioned whether extension work is best entrusted to adolescents who are not likely to have imbibed in the secondary schools the techniques of acting as advisers to a conservative farming community largely composed of their own parents. In Sabah each district is to have a rural training centre—16 of the 22 districts already have them—and in Sarawak five farm institutes are to train secondary-school leavers. A joint agricultural training school now under construction will provide field assistants (Category II) for both States.

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[1] This first incursion into education may seem premature, but it is properly considered an essential element in agricultural progress.

Industrial development and mining ($115.8 million: 2.5 per cent of total expenditure). Manufacturing is estimated to contribute 11 per cent of the Malaysian gross domestic product, employing about 6 per cent of the economically active population: it is confined almost entirely to Malaya.

The proposals are of a significance out of all proportion to the amount it is considered necessary to contribute to this sector in terms of actual expenditure.

There are four elements in the manufacturing sector: (a) the processing of agricultural products—rubber, copra, palm oil, tea, etc.; (b) the manufacture of consumer goods—food products, beverages, textiles, tobacco, furniture, footwear, leather goods, chemical and petroleum products; (c) the production of capital goods—metal products such as machinery and transport equipment; and (d) the construction industry, which is being rapidly modernized, and which is the fastest-growing activity in the economy.

The government proposes to continue its policy of leaving the operational role in industry to the private sector, its own contribution being largely the provision of incentives to saving and investment such as protective tariffs (though these may perhaps act as soporifics as well as incentives); tax concessions; the provision of credit for industrial development through Malaysian Industrial Development Finance Limited (MIDFL), a government corporation; and to the development of industrial sites. MIDFL will extend its activities to Sabah and Sarawak, where it will supplement the activities of the Borneo Corporation Limited, which develops factory sites and provides factory mortgages. This corporation is being further financed by the State Governments. The allocation of functions between the two corporations appears to need some clarification not to be found in the necessarily compressed text of the plan.

Particular attention is being given to minor industries and the activities of local entrepreneurs through an organization known as Bank Bumiputra, a people's bank (more literally an indigenous bank) and a Rural Industrial Development Authority (MARA), the rural equivalent in many ways of MIDFL, which will be strengthened to the extent of $70 million, principally to enlarge its training programme and its participation, through the acquisi-

TABLE 5. Malaysia: ratio of doctors, nurses and hospital beds to population

	Malaya (1964)	Sabah (1963)	Sarawak (1964)
Doctors	1 : 6 000	1 : 13 100	1 : 14 000
Nurses[1]	1 : 2 500	1 : 1 500	1 : 3 000
Hospital beds	1 : 270	1 : 450	1 : 460

Source: *First Malaysian Plan*, op. cit., Table 12-1, p. 175.

[1] Including hospital assistants and assistant nurses.

tion of shares, in local enterprises such as batik printing, rattan furniture making, tanning, saw-milling, etc.

MARA supplies, through its College of Business and Professional Studies, the main training element in the administrative aspects of this programme. The college is designed to assist young Malaysian citizens to take up careers in commerce and industry. Residential courses ranging from a four-year course in accountancy to eighteen-month courses in stenography are being organized, the staff and accommodation of the college are being doubled to deal with 600 students in 1970, and sucessful applicants for training will receive free tuition, board and lodging and transport to and from the college. There is also some question of external degree work being undertaken at a later stage. The college could perform a very useful function if it is able to procure staff, maintain standards, and set its sights firmly on commercial and business training, and avoid the temptation to enter the purely academic field.

As in agriculture, research is assigned an important role in this sector, and a National Institute of Scientific and Industrial Research ($5 million) is to be set up to back-stop local industrial development and in particular to study the problems of processing local products. In close association with this body it is also proposed to establish a Malaysian standards institute.

All the activities noted in this sector will be co-ordinated by a Federal Industrial Development Authority (FIDA) which will also promote new projects and work generally for the establishment of an infrastructure for industrial expansion. The proliferation of authorities is in some ways reminiscent of the growth of the United Nations family: the degree of co-ordination they achieve will be a measure of the soundness behind the thinking which is establishing them.

The infrastructure—transport, communications and utilities ($1,357.8 million). The exploitation of the economic potential of all these States, but in particular the Borneo countries, depends to a very considerable extent on communications—road, rail (there are some 90 miles of track in Sabah) and water—and on the transport using these facilities: postal and information services also have their part to play. Accordingly road development is allotted $389 million, of which $255 million are to be spent in Malaya: other heavy programmes concern port facilities and telecommunications. Power is again a vital element in development, and generation, administration and rural electrification amount to $545 million in Malaya and $29 million in Borneo.[1] The remainder of the programme consists of the development of water supplies at a total cost of $202 million, of which Malaya will require two-thirds.

Health services and family planning ($189.4 million). Health services in Sabah and Sarawak, though of high standard, are less developed than those in Malaya; the respective ratios of personnel and services to population are shown in Table 5.

The general objectives of the programme are: (a) to provide more health facilities, particularly in rural areas; (b) to train the personnel to staff these facilities; (c) the systematic control of communicable diseases and the improvement of environmental sanitation and nutritional standards; (d) to establish a programme of family planning.

Preventive services include tuberculosis and leprosy control and malaria eradication and the development of a network of health centres and clinics; in Sabah the system will be based upon 'health units' centred round a 'cottage' hospital.

The programme of curative services provides for six new hospitals, including the teaching hospital forming part of the new Medical Centre at the University of Malaya at Petaling Jaya,[2] six local hospitals in Sarawak and the first phase of a new general hospital at Kuching, a similar general hospital at Tawau in Sabah, and three cottage hospitals. It is clear that this considerable programme calls for extensive training of doctors, nurses, medical orderlies, dispensers and medical technicians generally, the bulk of the personnel being in Category II. Further reference will be made to this situation in the section below on manpower requirements (pp. 394-5).

With a population in Malaysia still growing at 3 per cent per annum, it is proving extremely difficult for development activities to keep in step with living standards, much less to advance them, and consequently a National Family Planning Board is to be established to carry out an extensive national programme, with the aid of voluntary organizations and the mass media of communication. This is essentially an educational and social programme, though emphasis is given in the plan to its economic significance and the statistical handling of the problems involved, rather than to the sociological background against which they must be tackled.

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[1] These figures might almost be taken as indicators of the difference in degree of development between Malaya and the Borneo territories.

[2] It may be useful to explain that as the university occupies the slope of a valley separating Kuala Lumpur from its industrial satellite of Petaling Jaya, the university is variously described as located at Kuala Lumpur, Pantai Valley or Petaling Jaya. It is the same university!

Social and community services ($315 million). These services include low-cost and government housing, sewerage, and a considerable number of small but important services to rural communities such as markets, rural paths, small water-supply schemes, dams, jetties, community centres and playing fields. Twelve multipurpose youth and sports centres are to be built, to include cultural as well as athletic activities, and various useful services to underprivileged sections of the community—old people, handicapped persons and those in need of protection—are to be strengthened and developed. Funds will also be available to continue present attempts to integrate the aboriginal population into the main current of Malaysian life.

Administration ($126.4 million). The programme which has thus been outlined will cast a heavy burden upon the administrations, and an estimate of $126 million envisages new government buildings in Malaya (33.6 million), Sabah (12.5 million) and Sarawak (6.1 million). A humanitarian rather than an ominous expenditure of $20.7 million is contemplated on prisons to improve conditions, though much of this will be spent on staff rather than inmates' quarters. Other projects range from the construction or purchase of embassies in Africa to topographical surveys and the acquisition of a computer (type and location unspecified).

Education and training ($440.8 million). No mention has yet been made in this survey of the plan of one of the major obstacles confronting development, the transformation of the human resources of the federation into viable manpower reserves, and the programme of education and training designed to cope with this problem. It seems preferable, however, to reserve details of the educational aspects of the plan[1] until the appropriate sections of the survey of the existing pattern of education which follows, and, as in the case of Singapore, to conclude the profile with a summary of the manpower situation and the part education is to play in meeting the demands involved. Accordingly, only the briefest summary of the educational section of the plan is given here, in order to round off the general picture.

Table 6 shows the proposed expenditure on education at all levels.

The figures involved are very high, but it nevertheless seems worthy of comment that the allocation to Malaya, 83.5 per cent of the total, is slightly higher than the over-all Malaya proportion of the total programme, which is 81.6 per cent: in the relative state of educational development of the two Borneo territories it might have been expected that an even greater effort

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[1] In fact the plan does not consider educational development in any great detail, the Ministry being apparently left to utilize general financial allocations in accordance with the requirements of national policy.

TABLE 6. Malaysia: development expenditure for education, 1966-70 (M$ million)

Levels of education	Malaya	Sabah	Sarawak	Malaysia
Primary	54.6	7.8	12.3	74.7
Secondary	188.7	14.2	29.2	232.1
Technical[1]	30.8	2.9	2.8	36.5
University	30.0	—	—	30.0
Teacher training	28.5	2.3	1.1	35.6
Other educational training	35.4	—	0.1	35.6
TOTAL	368.0	27.2	45.6	440.8

Source: *First Malaysian Plan*, op. cit., Table 11-1, p. 172.
1. Post-secondary level only in Malaya.

might have been made to reduce the degree of imbalance. It is true that some of the Malayan facilities may in time become not only available, but also used, by students from Borneo, but the main task in these territories at the moment is to develop secondary standards to the extent that a generous supply of students for post-certificate training and higher education becomes constant.

It is also interesting to note the high proportion of expenditure devoted to secondary education, particularly in Malaya, where it absorbs just over half the total expenditure planned. This is, of course, an indication of the advanced state of enrolment, though not necessarily of attainment, in the Malayan primary system, and an indication of the cost of the 'comprehensive education' (see pp. 323-6) which has been adopted as the logical extension of the full primary system now in force.

The objectives of the programme, briefly defined, are: (a) to provide educational facilities, particularly at the secondary level, to meet the needs of the increasing population of school age; (b) to improve the quality of education and spread educational opportunities more evenly through the whole of the countryside; (c) to diversify the fields of education with additional facilities in agriculture, science and technology; (d) to accelerate teacher training to implement these programmes.

It is estimated that developmental and recurrent expenditure on education will, by 1970, absorb some 5 per cent of GNP, a level of expenditure comparable with that of developed countries. Various measures to meet part of the cost, such as a reintroduction of local education rates, double sessions, low-cost building and overseas financial assistance, are being adopted.

This summary sketch of the main provisions of the plan shows the following proportions of estimated expenditure (extracted from Table 4 above):

Economic sector: agriculture, 23.9; infrastructure, 33.7; industry, 2.5; total, 60.1 per cent.

Social sector: education, 9.7; health, 4.2; social services, 6.9; total 20.8 per cent.
Administration: 2.8 per cent.
Defence and internal security: 16.1 per cent.

No reference has been made to the question of financing the plan: this very critical aspect of the operation scarcely falls within the province of an educationist. It has already been stated that more than half the total planned expenditure, involving operational industrial and agricultural development and the creation of employment opportunities, is expected to be found from the private sector, of which $1,000 million is expected in the form of overseas investment, and $5,160 million from domestic sources.

The public expenditure foreshadowed by the programmes for 1966-70, outlined above, is expected to be met from the following sources ($ million): government surpluses, 200; public authorities surpluses, 425; domestic non-bank borrowing, 1,025; bank credit and government accumulated assets, 1,000; foreign borrowing (net), 1,000; foreign grants, 900; total, 4,550 million.

It will be seen that $1,900 million is hoped for from foreign sources, of which just over half is expected to be derived from loans, and the remainder from grants, since the service payments on the total amount would be a crippling burden on public finances already facing a considerable increase in domestic indebtedness.

The operation and evaluation of a five-year plan is an undertaking of vast complexity, particularly in the timing of interrelated projects such as those, for example, in which trained staff have to become available to service new institutions—nurses for a new hospital, teachers for a new school or agricultural field assistants for a new settlement scheme—or those in which material facilities have to be synchronized, e.g., roads, schools and services for newly developed land areas (a necessary co-ordination, the absence of which has ruined a number of slum-clearance schemes in highly developed countries).

The basic organ of development in Malaysia dealing with such problems is the National Development Planning Committee (NDPC), whose current chairman is the Permanent Secretary of the Prime Minister's Department, who is also head of the civil service, and which includes, besides the chairman of the National Bank, representatives of the Treasury, the Ministries of the Commerce and Industry and Rural Development, the Department of Statistics, and of Sabah and Sarawak. The committee is serviced by a secretariat from the Economic Planning Unit, a section of the Prime Minister's Department. An advisory committee from the private sector is also to be set up which will include representatives from the employers' associations and trade unions.

Each State in Malaya has a rural development committee. Development committees have been set up in Sabah and Sarawak, and similar groups work at district level and even in some cases as far down as the *kampongs.*

The machinery of planning, implementation and evaluation is geared-in through a series of operation rooms—a technique adopted from military experience gained during the Emergency—and the information built up from *kampong* to district, from districts to State, and from States to the centre, culminates in the National Operations Room in Kuala Lumpur, where the information thus centralized is collated and wedded to material from the various ministries and organizations associated with development such as the National Bank.

The Operations Room is equipped with written and graphic progress reports on all projects in the programme. The principal source of information is the 'Red Book' which is the nucleus of each district operations room. The 'Red Book'—measuring three feet by four, and therefore not easily mislaid or inadvertently removed, conveys its information principally by a series of transparencies which can be superimposed on a map of the district. Each transparency, representing for example, water projects, cottage crafts or health centres, is kept up to date with a series of symbols, located at the map reference of each project, showing the present state of the project.

There is a 'Red Book' for each district, and the results are also indicated on some thirty national charts, each of which relates to one type of project.

The room is equipped with charts, projectors, a tape-recorder and the whole paraphernalia of audio-visual aids and display techniques, and it certainly supplies up-to-date, accurate and comprehensive information for quick briefings of all types. The Prime Minister can rapidly acquaint himself with the progress of the plan in any district which he proposes to visit; a full-scale meeting of NDPC can have its questions on matters of fact almost instantaneously answered, either by detail or by compilation; and a district officer in from Sarawak on mission can quickly learn a great deal of the achievements —and the difficulties—of the eighty or so colleagues charged, as he is, with the general oversight of a massive, detailed and vital programme.

This approach to an analysis of planning programmes and a constantly adjusted record of progress accomplished (or of a failure to progress) certainly reveals in the most striking fashion that the basis of the plan is fairly and firmly centred on the development of the individual rural communities of the federation.

THE EDUCATIONAL SYSTEM

MALAYA

Historical sketch

The basis of the present educational system of Malaya may be found in two major legislative enactments which remodelled and developed the earlier colonial system. They are the Education Ordinance, 1957, giving authority to the recommendations of the *Report of the Education Committee, 1956,*[1] and the Education Act of 1961, embodying the further recommendations of a committee set up under the subsequent Minister of Education, Abdul Rahman Talib, to review the working of the new policy and law in the light of experience gained since the 1957 Ordinance. This report was submitted to a House of Representatives which was finally wholly elected.[2]

While only the briefest summary is given of the growth of the educational system in colonial days, on the experience and organization of which the modern system is still evolving, it is nevertheless essential to any clear understanding if present trends and the problems are to be overcome.

Three factors were prominent in the early days:

1. The initial establishment of schools by private bodies—trusts, missions, individuals, local committees—and their subsequent absorption into a government system as the costs of education and the difficulties of obtaining teachers grew too strong for the original founders.
2. The multilingual character of the schools which, like those of Singapore, were divided into four streams in which either English, Malay, Chinese or Tamil was the language of instruction.
3. The peculiar constitutional situation before federation and independence in 1957 (see above, p. 277).

Education in English was largely developed by missions, notably the Catholic Christian Brothers and the American Methodist Church, though two of the oldest schools, still flourishing today as secondary schools, were the Penang and Malacca Free Schools founded by the respective colonial chaplains. The former developed satellite schools teaching in the vernacular, of which one original Malay school also survives. The government itself established in 1905 the Malay College at Kuala Kangsar, designed to prepare high-born Malays for entry into the administrative service.[3]

In the face of considerable prejudice, largely from the Muslim element of the population, the missions also pioneered in girls' education, as various convent schools still bear witness.

In due course a number of the schools were able to raise their standards to the secondary level, and the termination of the five-year secondary course was the Senior Cambridge Certificate examination, for which the first candidates were entered in 1891. By 1956 a few schools were also able to offer pre-university courses lasting for another two years, preparing for the Higher School Certificate of the same examining board, which was acceptable as an entrance qualification for the University of Malaya at Singapore.

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[1] Federal Legislative Council Paper No. 21 of 1956—a report known as the 'Razak Report' after its chairman, the then Minister of Education.

[2] *Report of the Education Review Committee, 1960* (Kuala Lumpur, Government Printer, 1964).

[3] This offers an interesting parallel with the Queen Victoria School at Matavatacou, Fiji, though there government found it necessary to go a step further by establishing, in 1952, a complementary institution, the Adi Cakobau School, for girls.

Although various schools at Penang and Malacca,[1] using Malay as the medium of instruction, were established early in the nineteenth century by the London Missionary Society, the basis of education in Malay must be sought in the Koranic schools, where boys learnt the Arabic script through the study of religion. In 1860, the board of directors of the East India Company having urged the extension of vernacular education, the Koranic schools were given grants on condition that they taught the three R's from textbooks written in Malay, and the system spread through the Straits Settlements and subsequently into the States, Federated and, later, Unfederated, where the Koranic schools later became secularized, developing into government schools entirely supported by public funds. The schools were finally placed on a firm footing after the publication of a notable report by Mr. (afterwards Sir Richard) Winstedt in 1916: the curriculum was developed and related to the environment and experience of the pupils, a school textbook bureau was started, and the training of teachers reorganized. A further consequence of the report was the appointment of a 'lady supervisor' of Malay girls' schools: but 'most Malay parents did not welcome education for their boys. They were actively opposed to it for their girls'.[2] The post lapsed in 1931 during a period of economic retrenchment.

Special arrangements existed for the transfer of Malay pupils, both boys and girls, from Malay[3] primary schools to English secondary schools. Hostels with subsidized boarding were attached to some English schools and special Malay classes were organized for a bridge period of two years. Many State scholarships were provided for these children.

Chinese schools, originally modelled on the village school pattern of old China, in which the teacher was a combination of shaman, fortune-teller and letter writer, teaching by rote and on the abacus,[4] were revivified as a result of the upsurge of education in China following upon the Revolution of 1911. They were maintained by individuals, societies, clan associations, Christian missions or, in the majority of cases by management committees of local people who subscribed together to finance the school. Teaching in Kuo-Yu (Mandarin), and not in the various dialects, was adopted after the National Language Movement in China in 1920. A major difficulty of the system was the supply of teachers, who for some time had to be recruited from China, and whose outlook was anything but Malaysian: the situation was improved when in 1952 *per capita* grants-in-aid for Chinese schools were replaced by salary contributions which provided regular salary scales and security of tenure for the staff, in return for which the schools were required to teach both Malay and English as additional languages, to follow a prescribed curriculum, and to charge approved fees.

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[1] The Straits Settlements were the earliest parts of Malaya to come under British influence.

[2] *Malaya: Annual Report on Education for 1957*, p. 13. The comment refers to the period 1920-30, and is related to the difficulty of having to establish co-educational schools where numbers did not warrant two separate establishments.

[3] It may perhaps be well to emphasize that when a national denomination is prefaced to a school, as in 'English school', 'Malay school', the reference is simply to the main language of instruction. Thus in government and aided schools in the English stream in 1956 pupils were to be found in the following ethnic groups: Malay, 40,885; Chinese, 68,789; Indian, 29,156; European and Eurasian, 2,585; other Malaysian, 150; others, 343.

[4] An exercise by no means to be despised, either for its practice in accuracy or its efficiency as a calculating machine.

From the seventies onwards small schools for the children of South Indian (largely Tamil) workers on coffee, sugar, coconut and finally rubber plantations began to spring up, and a Labour Code was introduced in the States in 1912 by which an estate with ten or more children of school age was required to provide and staff a school, a small grant being made available. The schools were for the most part struggling institutions with poorly paid teachers, and there was only one professional officer (when the post was occupied at all) training in Tamil to supervise the schools.

The training of teachers for all these systems proved a considerable obstacle to their development. For the English schools the normal school type of training had been adopted, the trainees teaching under supervision and attending week-end lectures. By 1955 the system was producing 300 trained teachers a year from an original intake of 600, and of those who survived many regarded teaching as a *pis-aller* until they could find more remunerative employment. The difficulty had, of course, been foreseen, and the first measure to reduce this source of danger to standards was the imaginative one of leasing one of the now redundant 'emergency training colleges' at Kirkby, near Liverpool, in England, and sending over a first batch of 150 trainees for a two-year residential course in December 1951. A second course was developed at Brinsford Lodge, near Wolverhampton, in 1955, and a college of similar capacity and purpose was also opened in Khota Bharu, on the comparatively neglected east coast of Malaya, in 1954.

The training of Malay teachers had been greatly stimulated by the Winstedt Report (see above, p. 309) and two not very progressive colleges at Malacca and Matang were amalgamated in 1922 at the Sultan Idris College in Tanjong Malim, Perak, where a revitalized three-year course was set up. For some time the college served Sarawak, and students still come from Brunei: many teachers in the Malay stream schools of Singapore also owe much to this college. Girls' school teachers were trained at Malacca, in a college opening in 1935, which offered first a two- and then a three-year course, and has exercised an influence over the education of girls in Malaya and Singapore out of all proportion to its size.

Teachers (and inspectors) for the Chinese schools had originally all to be recruited from China. Normal classes were subsequently established, but were on the pattern of the French *école normale*, and were classes taking an ordinary lower secondary-school course with an extra year for professional training. It was not until after the Second World War that post-school normal courses were established after three years of secondary education.

Teachers in Tamil were trained in courses established at small centres in the various States, but the comparatively small size of the problem seems to have diverted attention from its urgency, and it was not until after the war that conditions of grant, salaries and supervision were equated with those prevailing in the other streams.

In 1926 the first trade school was opened in Kuala Lumpur, to be followed by three others, as well as some small carpentry schools. The total enrolment in the four main schools in 1956 was: mechanics, 361; electricians, 102; building trades, 247; tailors, 28; and radio mechanics, 25; a total national enrolment of 763. Twenty-three student teachers were also being taught carpentry or metal work. A report on vocational education submitted in 1938 by H. R. Cheesman, a subsequent director of education, contains a number of recommendations typical of thinking on vocational education in countries which had not yet acquired the status of 'developing' at the time: indeed they are not without interest in today's context. Among the principal recommendations were: (a) 'trade schools' to widen their general content and become junior technical schools to cater for pupils 'not intended for clerical or professional careers'; (b) workshop crafts and domestic science to be taught to boys and girls respectively in the English stream (i.e., to the academic cream of the system); (c) science to be included in all secondary schools, commencing with schools in the English stream; (d) a post-certificate commercial school to be established in all major urban centres; and (e) more intensive agricultural training for some vernacular-school teachers.

The concept that technical education offers the appropriate course for the less gifted pupils is present in full force—otherwise the attempts to broaden general education remain valid, and still, to a considerable extent, unachieved; commercial education is still largely restricted to private evening classes; and the staff needed for the agricultural courses envisaged in the new 'comprehensive education' (see below, pp. 323-6) and the more specialized courses which are to follow it are yet to be trained. The outbreak of war with Japan prevented any systematic attempt to carry out this programme.

In the meantime an institution to become of great importance, the technical college, was well advanced in its earlier stage. Starting as a technical school for the Railways[1] and Public Works in 1906, it was closed down during the first World War, resuscitated as a technical training school under the Railways in 1919, taken over by Public Works in 1925, transferred to the Department of Education in 1931, and four years later handed over to the State of Selangor, though it continued to train pupils from all over Malaya. By 1942 it had been planned to raise it to the status of a technical college, and a new site was acquired, but, as with so many other projected developments,

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[1] The significance of railway departments in the development of colonial technical education surely merits a study.

TABLE 7. Students training overseas at the third level, 1956

Subject	Government-aided					Private					
	United Kingdom	Aust-ralia	New Zealand	Others	Total	United Kingdom	Aust-ralia	New Zealand	Others	Total	Grand total
Accountancy (includes commerce)	5	13	1	—	19	21	62	—	—	83	102
Arts	1	10	—	76	87	8	18	—	55	81	168
Economics	10	—	—	—	10	7	9	—	—	16	26
Law (degree)	5	—	—	—	5	15	1	—	—	16	21
Agriculture	12	1	6	5	24	2	9	—	—	11	35
Education:											
Teaching	14	9	3	64	90	18	2	—	—	20	110
Science	7	9	—	34	50	—	58	—	30	88	138
Forestry	6	3	—	—	9	—	—	—	—	—	9
Geology	—	—	—	—	—	—	1	—	—	1	1
Bar	15	—	—	—	15	47	—	—	—	47	62
Medical:											
Medicine	—	9	—	112	121	82	142	—	137	361	482
Dental	—	1	—	20	21	7	39	—	37	83	104
Mining	6	—	6	—	12	1	2	—	—	3	15
Postal[1]	5	—	—	—	5	—	—	—	—	—	5
Printing[1]	1	—	—	—	1	—	—	—	—	—	1
Engineering:											
Civil	23	20	1	5	49	26	66	—	—	103	152
Mechanical	8	4	3	—	15	3	1	—	—	4	19
Electrical	8	—	—	—	8	8	5	—	—	13	21
Telecommunications	14	—	3	—	17	4	—	—	—	4	21
Architecture	11	2	—	—	13	47	29	—	—	76	89

Quality surveying	6	—	—	—	6	—	—	—	—	—	6
Surveying	1	1	2	—	4	—	1	—	—	1	5
Veterinary science	2	6	—	—	8	—	2	—	—	2	10
Railways:											
Civil engineering	2	—	—	—	2	—	—	—	—	—	2
Mechanical engineering	3	—	—	—	3	—	—	—	—	—	3
Electrical engineering	2	—	—	—	2	—	—	—	—	—	2
Administration	2	—	—	—	2	—	—	—	—	—	2
Transport and traffic	4	—	—	—	4	—	—	—	—	—	4
TOTAL	173	88	25	316	602	296	447	—	270	1 013	1 615

Source: *Annual Report on Education for 1956*, p. 41 (Kuala Lumpur, Khee Meng Press).

1. It is not clear what qualification equivalent to a degree is indicated here.

the war intervened, and the new college was not finally built and equipped until 1954, when with the assistance of nearly M.$5 million from Colonial Development and Welfare Funds[1] and a generous gift of electrical machinery from Australia, it entered upon third-level training with accommodation (largely residential) for 500 students, of whom 422 were enrolled in 1956.

The only other college of this standing in Malaya itself was the College of Agriculture at Serdang (also treated more fully below, pp. 384-7). This formed at the time the education branch of the Ministry of Agriculture, providing a diploma course of three years' duration mainly for agricultural assistants in the department, and a one-year course for junior assistants. In 1956 there was a total of 90 students of whom 60 were enrolled in the three-year course.

University education was provided by the University of Malaya in Singapore, and an account of the history of the university up to 1959, when one division was established at Kuala Lumpur, eventually to result, in 1963, in a fully autonomous University of Malaya may be found in the profile of Singapore (pp. 433-8). In 1956 some students, or 62 per cent of the student body of 1,574, came from Malaya.

There was also a considerable number of students overseas working at the third level, details of which for the year under review were collected for the information of a committee reporting on the Malayanization of the public services. Table 7 shows the number of students, assisted by the government or supported privately, taking courses overseas which would qualify them for admission to Division I of the public services, i.e., courses at graduate or equivalent levels.

This undoubtedly involved, and necessarily very compressed, account of the growth of Malaysian education to *Merdeka*[2] is reflected in the equally intricate administrative system under which it functioned.

In 1872 an officer of the administrative service (not a professional educator[3]) was appointed Inspector of Schools of the Straits Settlements, the title being changed to Director of Public Instruction in 1901: two subordinate officers were stationed in the other Settlements at Malacca and Penang.

Perak was the first Federated State to open a Department of Education in 1890; seven years later a Federal Inspector was appointed. This post lasted until 1906 when the control of education in the Settlements and the Federated States was vested in the Director of Education and the Educational Adviser—one officer wearing two hats. The director and his staff were able to maintain a certain measure of uniformity of aims and administrative

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1. Is it possible that the British Colonial Development Act, 1929, was the first specific reference to the process of economic development in emerging countries?
2. A fuller but still concise outline may be found in the *Annual Report for Education, 1957*.
3. An interesting contrast to the appointments eighty-five years later to the new Ministry in Singapore: *vide* Singapore profile.

practice throughout the peninsula, largely through the conditions on which federal grants for education were made available. The supervision of the Settlement and State Departments had by this time passed to the control of educators.

The Federal Service grew. A Chief Inspector of English Schools, holding a post created in 1919, became in 1938 Deputy Director/Adviser—and was consequently posted to join his senior in Singapore, in confortable retreat from the anxieties of up-country education. By 1931 there were two Assistant Directors for Chinese education, one for the Settlements and one for the States, and in 1937 an Inspector of Indian Schools was also appointed. All these officers had an inspectorate in their charge, as well as specialist organizers.

Meanwhile, each of the Unfederated States had its own independent Department of Education. Thus up to the time of the Japanese invasion only the Straits Settlements had a Director of Education in complete charge of the education system: there was a certain degree of co-ordination between the Federated States; the Unfederated States remained for the most part aloof from the general stream of educational development. In general, before the Second World War free vernacular education had been provided for Malays (primary and secondary education had been subsidized for all races; it was free for Malays); the Chinese schools were controlled through grants, and the Indian schools were similarly subsidized. Only the English schools provided a common ground.

With the general move towards self-government after the war it was clear that the major need was for the unification of the racial communities and the evolution of a national system of education. Language remained the great barrier.

In 1945 the Malayan Union, the short-lived precursor of the Malayan Federation, was established,[1] and there followed a spate of inquiries into and commissions on education. These included a policy paper (Council Paper No. 53 of 1946), a similar report in 1950 from a Central Advisory Committee on Education, an investigation by a Committee on Malay Education in 1951 which proposed Malay or English as the sole media of instruction, the Fenn-Wu Report in 1951 on the education of Chinese, bitterly hostile to the Malay report, and a further report, attempting reconciliation, from the Central Advisory Committee.

These reports were all considered by the Legislative Council, and an *ad hoc* committee drafted the Education Ordinance, 1952, which adopted the idea of a national school with English or Malay as the medium of instruction, but provided for teaching in Mandarin or the Indian languages where more than fifteen parents requested it. Other measures included the registration of schools, teachers and managers, and the setting up of local education authorities but a federal inspectorate. Finally, the ordinance provided for the eventual free and compulsory education of all children of all races between the ages of 6 and 13.

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[1] See above, p. 277.

It did not work.[1] Neither the Malays nor the Tamils cared for the national schools—the Chinese hotly opposed them: the cost of implementing the provisions of the ordinance proved to be beyond the resources of the federation, and the inevitable committee pared down its provisions.

In 1955 the Alliance, a combination of Malay, Chinese and Indian political parties, came into legislative power, and yet another committee was appointed to work out a new educational policy based on the party decision to make Malay the national language whilst preserving the language and cultures of the domiciled minorities. It was on the report[2] of this, the Razak Committee, that the 1957 Ordinance was framed.

With this ordinance, amended by the 1960 Act, the present system may be said to have been established, and before proceeding with an examination of its workings today it may be well to take a brief quantitative view of the situation in 1956, before control of education passed completely to the now independent federation. Accordingly Table 8 shows the total enrolment on 30 September 1956.

The enrolment of 981,801 includes 637 students in second-level training colleges and 9,602 teachers in normal classes. The table shows that the proportion of pupils in secondary schools was 11.9 per cent of the primary school population, and that though pupils in English schools only formed 16 per cent of the total primary population they constituted 64.4 per cent of the secondary enrolment. The data available make it very difficult to assess the relationship between enrolment and the total population of school age. A very rough indication may be sought in the 1957 figures, the census year. The population between the ages of 6+ and 18+ (the hypothetical years of a thirteen-year primary and secondary course), numbered 1,927,558, and in the same year the number of pupils enrolled in primary and secondary institutions was 1,120,872—a percentage of 58.1. This figure is merely an indicator: the full thirteen-year course includes the very selective sixth form pre-university courses, and of course the school population included many repeaters and over-age pupils. This is illustrated by Table 9, showing the distribution of the 10+ and the 16+ age-groups in September 1957 (this year is again selected as the census year).

The spread of the 16-year-old population (before the introduction of automatic promotion) is quite fantastic: it covers the entire range of the school course, and 53 16-year-olds are to be found along with the 5,000 10-year-olds in the first (infant) class, theoretically for age 6+. The heaviest enrolment of 16-year-olds is in class 6—the normal maximum enrolment should

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[1] Nevertheless it anticipates many of the findings of the Razak and Talib Reports.

[2] Reproduced in the *Federation Annual Report on Education for 1956*.

TABLE 8. School enrolments on 30 September 1956

Stream	Primary			Secondary			Total boys	Total girls	Grand total
	Boys	Girls	Total	Boys	Girls	Total			
English	91 081	49 559	140 640	46 076	21 043	67 119	137 157	70 602	207 759
Malay	233 662	161 494	395 156	6 314	2 391	8 705	239 976	163 885	403 861
Chinese	181 527	111 964	293 491	19 555	8 285	27 840	201 082	120 249	321 331
Indian	26 484	21 728	48 212	479	159	638	26 963	21 887	48 850
TOTAL	532 754	344 745	877 499	72 424	31 878	104 302	605 178	376 663	981 801

TABLE 9. School distribution by class of two age-groups, 1957

Age-group	Year of school course												Total enrolment	Total age-group	Per-centage
	1	2	3	4	5	6	7	8	9	10	11	12			
10+															
Boys	2 597	15 735	32 728	25 082	3 369	250	2	—	—	—	—	—	79 763	85 586	93.2
Girls	2 544	12 939	19 982	17 295	2 363	68	2	—	—	—	—	—	55 193	79 219	69.7
TOTAL	5 141	28 674	52 710	42 377	5 732	318	4						134 956	164 805	81.9
16+															
Boys	35	99	451	1 271	3 016	4 682	3 385	3 708	3 605	1 379	328	13	21 972	62 504	35.2
Girls	18	73	224	514	935	1 683	1 434	1 780	1 615	734	23	6	9 039	62 770	14.4
TOTAL	53	172	675	1 785	3 951	6 365	4 819	5 488	5 220	2 113	351	19	31 011	125 704	24.7

be in classes 9 or 10. The preponderance of boys is clearly shown by the age-group percentages: the enrolment percentage of 10-year-old boys is remarkably (and improbably) high, as is indeed the enrolment figure for the whole of the group. The enrolment of 24.7 per cent of the 16-year-olds sounds well, but a glance at Table 9 shows that little more than half this enrolment (actually 58.1 per cent) had reached secondary schools. Despite these factors the indicators suggest, having regard to the difficult geographical terrain and the administrative and racial complexities of the situation, a not inconsiderable achievement.

A number of other points of interest may be found in the unusually full departmental reports of this period. (It is indeed to be regretted that their publication ceased with the 1957 Report.) It is, for example, unusual to find education authorities quoting publicly figures of average attendance, which in fact are those usually used as a basis for staffing and *per capita* grants and expenditure, and certainly a more precise guide than enrolment figures to the actual effectiveness of an educational system. The 1956 Report gives average attendance figures ranging between 89.7 per cent in mission and committee schools and 87.6 per cent in the Tamil schools on plantations: very creditable figures in all the circumstances.

Table 10 shows the composition by qualification of the teaching establishment.

TABLE 10. Teachers classified by qualification[1]

	Primary schools			Secondary schools		
	Men	Women	Total	Men	Women	Total
Trained						
Graduates	26	44	70	206	136	342
Completed secondary course	4 427	2 456	6 883	991	459	1 450
Not completed secondary course	5 232	1 874	7 106	27	63	90
Untrained						
Graduates	73	19	92	242	59	301
Completed secondary course	2 095	1 352	3 447	658	134	792
Not completed secondary course	6 195	2 518	8 713	73	12	85
			26 311			3 060

Total trained	15 941	Graduates	805
Total untrained	13 430	Completed secondary course	12 572
Teaching establishment	29 371	Not completed secondary course	15 994

[1] The table does not include 3,347 specialist teachers of languages in various streams.

It will be observed that of an establishment of 29,371 regular staff in primary and secondary schools (including normal classes and other forms of teacher training below the post-secondary level) a little over 50 per cent (15,941), had received training whatever their academic standard. The same approximate percentage has only received three years of secondary education. Of the 3,060 teachers in secondary schools only 342 were graduates, but only 175 had failed to complete a secondary school course themselves.

The least satisfactory aspect of the educational picture, particularly from the viewpoint of development, is the extremely low number of pupils (of high ability, since rigorous screening had preceded their selection) who attended the post-certificate secondary course of two years leading to the Higher School Certificate and university entrance—a course only available in English-medium schools. In 1956 there were 1,040 such pupils, 801 boys and 239 girls, a total of 637 in the first year and 403 in the second year of the two-year course. The most refreshing aspect of the picture is that 641 were reading science or mathematics as against 399 reading arts; this was probably due to the very realistic view of the purpose of education adopted by the Chinese people, a complete reversal of the old Mandarin concept.[1] Nevertheless the numbers compare very unfavourably with the number obtaining the basic qualification for sixth form entry: 3,753 candidates obtained School Certificates in 1956, but only 301 entered sixth forms in 1957.

As a final indicator in this brief survey of education in the last year before complete independence, it may be noted that total expenditure on education was M$118.2 million, of which M$6.1 million was contributed by voluntary agencies and M$0.65 million by other government departments. Federal funds provided M$104.6 million, State funds M$1.1 million, and M$2.4 million was received from fees. The percentage allocations of expenditure were: post-secondary, 0.14; secondary, 10.5; primary, 61.7; teacher training, 3.4; vocational, 1.0; administration, inspection and office expenditure, 6.6; scholarships, 1.4; boarding costs, 1.6; maintenance of buildings and furniture, 2.4; capital expenditure (buildings), 9.0; other, 1.8.

With 72 per cent of the expenditure devoted to primary and secondary education it might be thought that an expenditure of 3.4 per cent of the total on teacher training was not, despite the efforts being made, by any means excessive, particularly with almost half the teachers untrained. Possibly the effect on basic primary and secondary costs of rapidly increasing the supply of trained teachers, and thus the salary bill, which probably made up at least 75 per cent of the total expenditure, was not without influence in this situation.

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[1] But see p. 336 and Table 14 below. As these numbers have been increased by Malay students, the arts stream has been correspondingly swollen.

The present position

The Razak Committee attempted to reorganize the system existing in 1956 to the end that 'it must satisfy the legitimate aspirations of each of the main cultural groups who have made their home in Malaya and it must offer the prospect of a place in a school for every child born in this country'.[1]

Among the main recommendations to accomplish this were: (a) the establishment of local authorities to be responsible for primary and vocational education; (b) the establishment of a Federal Inspectorate; (c) the creation of a unified teaching service; (d) primary schools to be known as 'standard' (Malay medium) or 'standard-type' (English, Chinese or Tamil media); (e) Malay and English to be compulsory subjects in all schools; (f) promotion to be automatic in primary schools, i.e., a standardized age of entry, and no retention, pupils being streamed according to ability (presumably where the size of the school made this practicable); (g) one 'national' type of secondary school to be uniform, with a flexible curriculum permitting schools to give attention to various languages and cultures; (h) common content syllabus and time-tables for all schools; (i) the establishment of an institute to train teachers of the Malay language and to carry out research in the use and teaching of languages in Malaya.

During the sessions of the committee it was learned that steps had been taken to set up a Malay Language and Literature Agency (Dewan Bahasa Dan Pustaka) which took over the Malay Textbook Bureau from the Ministry of Education and started on an intensive programme of translation, publication and linguistic study designed to: develop and enrich the national language; develop literary talent by publishing magazines, pamphlets and other material, particularly in the national language; standardize spelling and pronunciation, and devise appropriate technical terms for the national language; prepare and publish the National Language Dictionary. This organization, which most strangely is divorced from the Ministry of Education, the university, the language institute recommended in (i) above, or any other education institution, has campaigned relentlessly for the propagation and sole use of the national language with a militancy which it is difficult to believe stems from purely educational or linguistic motives.[2]

This stress on the teaching of Malay, the national language, is symptomatic of the great importance placed on the language as an overt manifestation of the national image, and its progress has been spectacular, at least quantitatively, despite immense staffing difficulties.

The Federal Constitution requires Malay to become the sole official language from 1967, and educational policy has been shaped to this end. Thus Malay is now a compulsory subject at all levels of education, for all teachers' certificates, and in all national and public examinations. In 1965, of 1,217,309 pupils in assisted primary schools, 555,349 were attending 'national' (Malay-medium) schools, all the others were being taught Malay, and these schools will become national as soon as adequately qualified teachers are available.

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[1] *Federal Legislative Council Paper No. 21 of 1956*, op. cit., Article 186.

[2] The functions of the Dewan Bahasa and the language institute are discussed in some detail by Noss.

In 1958 Malay was introduced as a medium in secondary schools, special classes being at first attached to English schools. By 1964 there were twenty-six Malay-medium secondary schools, and by the following year 67,484 pupils receiving a secondary education in Malay, of whom 158 were in sixth forms preparing for a special entrance examination to the university. In the same year university teaching began in Malay as well as in English in a few courses in the Faculty of Arts.

The revision of the Razak Report made by the Abdul Rahman Talib Committee consisted largely of an examination of progress made since the 1957 Ordinance. The main lines of development were endorsed but the new committee, considering that the time was ripe for further advance, recommended that the school-leaving age should be raised to 15, and that free compulsory primary education should be introduced.

The main variant concerned the administration of the educational system. An attempt had been made, starting with the States and the municipality of Kuala Lumpur, to decentralize the execution of educational policies through local authorities. Policy would be directed by the Federal Minister in Kuala Lumpur, and be largely controlled through the conditions upon which grants-in-aid would be made from federal funds. It had been argued that such a step would enlist local interest in educational development, and that substantial financial assistance would be furnished from local rates. The new committee stated that the local authorities had in fact turned out to be State governments (which apparently were no more mindful of local interests than the Federal Government), and that there was no possibility of raising an adequate rate from local taxation. The points are not argued in the report, and it is possible that the dispersion of authority in such a significant area as education in the early days of a new federation may not have seemed politically expedient to those at the centre.

Today education is wholly a federal matter, both legislatively and executively, the Minister for Education being responsible to the Federal Parliament for the successful working of the system. The Minister has wide powers to make subsidiary legislation regulating the registration of schools, managers, teachers and pupils; staffing; the keeping of records; and the standard of amenities and hygiene. He may also issue directions to school managers who exceed or evade their statutory responsibilities. The administration of the department is in charge of a permanent secretary, supported by a chief educational adviser who handles professional problems. In each State the Ministry is represented by a chief education officer (a federal civil servant), who is responsible for delegated administrative duties throughout the State.

A Federal Inspectorate under a chief inspector is concerned with the maintenance of standards of school work: individual advisory visits are paid as frequently as possible and full inspections are carried out by panels of inspectors on the pattern of the work of Her Majesty's inspectors in the United Kingdom.[1] The inspectorate provides a valuable professional link between the schools in the States and the central administration: its members are freed from many of the routine duties inevitable in a school system by the activities of registrars who ensure that the conditions of registration and the maintenance of premises are being carried out.

Free primary education of six years' duration is provided in fully assisted schools in Malay, English, Chinese (Mandarin) or Tamil. There are also a number of private schools registered with the Ministry. Education is not compulsory, but average attendances exceed 90 per cent. All schools are required to conform to the national pattern by maintaining an organization of managers and by observing common syllabuses, time-tables and courses, and disciplinary and health regulations.

Until 1965 primary education prepared pupils for the Malayan Secondary Schools Entrance Examination, on the results of which the most successful candidates (a percentage which had been rising from 35 to 40 per cent) were admitted to academic secondary schools, in which the language of instruction was either Malay or English, other languages being taught as curriculum subjects. (From 1967 onwards it appears that Malay will be the only language of instruction.) General secondary education (again until 1965) covered a five-year course (six years for those pupils placed in a remove class for one year when the medium of instruction changed on transfer to secondary school) with what may be described as an examination bar, the Lower Certificate of Education, success in which permitted some 60-65 per cent of the pupils to a further two years' course leading to the Cambridge Overseas School Certificate Examination (in English) or the Federation of Malaya Certificate of Education, which can be taken in Malay or English. Even after success in this examination a further entrance examination was necessary before pupils were admitted to sixth forms where a pre-university course of two years led to the Cambridge Higher School Certificate, success in which, together with certain faculty requirements in standards attained in specific subjects, admitted to the universities of Malaya or Singapore.

For those who did not secure admission to an aided secondary school where fees of $5 per month per pupil were charged, with a margin of 10 per cent free places except in Malayan secondary schools, where education is free, and who could not afford to attend a private school, or those who did not negotiate later examination hurdles, a variety of courses were open. In 1964, the last year of their existence, 17,300 children were enrolled in 'continuation schools', which gave them a two-year non-academic course after primary education. A more developed course of the same general character, lasting for three years, was also given in rural extension schools, whose programme included general education, and pre-vocational training in trades and agriculture. This was a new type of school, only twenty of which existed in 1964, four being for girls. Two further outlets were available after three years of secondary education for pupils who did not go on with further academic education. Two junior secondary trade schools gave three-year courses in electrical, mechanical and building trades for pupils who could then enter a national apprenticeship scheme, accelerated entry to which in fact formed the third year of the course. At the same stage but at a higher level a limited number of pupils obtaining credits in mathematics or science were selected for admission to one of two secondary technical schools, which, like the academic secondary schools, prepared pupils for the School Certificate examinations, but by means of a course with a technical bias. Successful students generally either entered on diploma or professional courses at the Technical College, or worked for two more years towards a Higher Certificate with the aim of entering the Faculty of Engineering at the University of Malaya. The majority of recruits to the teaching profession were recruited for three-year courses after the third year of secondary education for a three-year course, or, if they had obtained a School Certificate, for a two-year course. Commercial education was only available in private schools.

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[1] Two of whom, at the time of writing (March 1966), are spending six months in Malaya working with the Federal Inspectorate.

The introduction of 'comprehensive education'. The past tense has been frequently employed in this description since a major policy change was effected in 1965 when, following the six-year primary course, the Malayan Secondary Schools Entrance Examination was discontinued and all children whose parents so elected were able to send them, on a non-selective basis, to secondary schools for a three-year course of 'comprehensive education'.[1]

This measure meant in effect that the selective nature of secondary education was postponed for a further three years and that the inconclusive and not very extensive experiment in non-academic post-primary education represented by rural extension schools and continuation schools was discontinued.

During the three comprehensive years pupils study a group of 'core subjects': (a) the pupils' own language (if Chinese or Tamil); (b) the language medium of instruction (Malay or English); (c) English or Malay if the other is the medium of instruction; (d) social studies; (e) mathematics; (f) general science; (g) civics; (h) health and physical education; (i) arts and crafts and/or music (dependent on the availability of staff?); (j) Islamic religious knowledge in the case of Muslim pupils, or Bible knowledge. Subjects (i) and (j) are optional.

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[1] Four years if an initial year in a remove form was needed for those for whom a change in school meant a change in the medium of instruction.

In addition, at least one practical subject must be selected from industrial arts, home science, agricultural science and, in the third year only, business practice. An even more practical aspect is given to the first three subjects, since in the third year alternatives to each of the three are workshop practice, housecraft and practical agriculture; it appears that these are planned as specifically pre-vocational training courses.

The course terminates, after nine to ten years of schooling, with an examination for the usual Lower Certificate of Education, in due course to be tempered to the comprehensive lamb. The programme thus outlined will have been designed for each child by means of a system of educational guidance and counselling based on a cumulative record card which has not yet been devised.

Upon completion of this course, which implements the policy of raising the school-leaving age to 15 (on a voluntary basis), it is planned to offer three options for the next two years of school life: two will be courses in academic or in technical subjects in upper secondary schools preparing for the Malayan Certificate of Education (School Certificate standard), with the further possibility of continuing at school for yet another two years to sit for the Higher School Certificate examination and university entrance. Those leaving school after the Certificate of Education will be able to enter teacher-training colleges, the Technical College, the College of Agriculture or other forms of training. The only novelty about this aspect of the programme is the proposed development of technical education at the School Certificate and sixth form level. The third option, for those less gifted academically, is attendance at two- or three-year courses in secondary vocational schools of various types, whence students will emerge as craftsmen, agriculturists, shopkeepers, etc.

It is planned to build 156 new schools, 391 additional classrooms and 71 new hostels to accommodate the increasing enrolment over the first three years of a new course; the programme was started before the move was introduced, but in order to implement this massive programme, which seems to have appeared by some form of administrative parthenogenesis, it has been necessary to introduce the double-shift system into practically all lower secondary schools in order to accommodate the greatly increased entry—an additional intake in 1965 of 96,794, or more than double the usual enrolment. Apart from expected creakings and public protests during the first week or two, the change-over to the new system appears to have been smoothly accomplished, though it may well be imagined that the head teachers and staff were faced with many problems.

The reform also clearly called for a greatly increased number of teachers: the original calculation was 4,500 in each of the first three years. They are to be trained either in the two-year training colleges which already exist, or by a form of normal training, teaching for half the week, observing for the other half, and attending one of sixteen regional training centres at weekends and during school vacations. It is a strenuous programme, and it may be thought that the difficulty of providing the requisite number of adequately trained teachers is the weakest link in the new chain, though it must be remembered that the impressive curriculum will in fact be taught only in the first three years of post-primary education: a shrewder opinion might possibly wonder whether the promised developments after the comprehensive course will not present greater obstacles in the lack of suitable buildings and qualified staff.

The aims of the programme are clear:

To raise the school-leaving age, on a voluntary basis, to 15.

To postpone selection for specialized forms of secondary education for a further three years, thus avoiding premature allocations to the various forms of secondary education, which is stated to be one of the great evils of the '11-plus' examination system.

To provide a sufficiently wide choice of subjects for study for the child's aptitudes, interests, and potential to make themselves clear both to him and to his teachers and parents.

By the diversification of studies to cover the needs of manpower demands of the national economy 'as a result of choice or preference by parents and pupils'. This assumes that adequate numbers of pupils and parents will be sufficiently accommodating in their selection of future occupations to enter in adequate numbers all the callings requiring skilled or semi-skilled workers. Precedents are not altogether encouraging.

To prepare the way for specialized training commencing in form IV and continuing through sixth form, technical college or university.

This bare account gives little indication of the complexity of the planning process which produced this programme: indeed it could perhaps be objected that it bears too close a relationship to a planners' exercise—the whole concept may appear based rather more on educational theory than upon wide administrative experience—and the unknown quantities (the reactions of children and teachers) remain to be weighed, and the bulk of the uncomfortable task of transforming plans into their realization in terms of buildings, equipment and other facilities remains to be done.

The plan is just entering upon the second of its initial period of three years as this commentary is written, and it would be premature to attempt any evaluation at this stage, but a number of queries obtrude:

1. Is the curriculum possibly too wide or too ambitious for the conditions under which it is being put into practice?
2. Is the crash programme of training adequate to produce competent teachers to face new and difficult assignments?
3. Can the teaching staff deal competently with a cumulative record system which, to be of value, must be extremely complex? Many sophisticated systems have failed to promote such a system widely.
4. What provision is being made for the many types of upper secondary schools envisaged by the plan? This is likely to prove just

as troublesome as the initial stage, though quantitatively it will be smaller.

5. What provision exists for linking the new educational output with employment needs?
6. Will the pace be reduced to accommodate the less gifted pupils in small rural schools where streaming or setting presents difficulties? What is likely to be the effect of the first three unselective years on the extremely able children who are potential university material?

It is a bold experiment, perhaps somewhat prematurely launched, and if it is carried through to cover the whole secondary course it should greatly improve the quality and quantity of technicians of all types, an essential need of the economy.

Certainly every facet of the experience should prove informative to other countries moving in the direction of an expanding and diversified secondary education: the Ministry of Education, not notoriously given to seeking publicity for its results, will make a considerable contribution to comparative education if it undertakes a continuous and comprehensive evaluation of its comprehensive education.

Higher education. To complete this outline, at the third level university studies are available at the University of Malaya, and at the University of Singapore and Nanyang University[1] and technological education at the Technical College which offers professional and technical courses to pupils who have completed a secondary education, assisting students from rural areas by a preliminary one-year orientation course. Agricultural diploma courses are given at Serdang College, and a College of Business and Professional Studies under the auspices of the Ministry of National Rural Development is to offer to Malays and the indigenous peoples of Sabah and Sarawak four-year full-time courses in accountancy, cost and works accountancy, statistics, three-year courses in management studies and company administration. It is doubtful whether the educational as opposed to the technical content of these courses really justifies their inclusion in this particular study. If it does, it is also necessary to refer to courses in management, labour relations, production planning and other management development skills given at a National Productivity Centre, which is operated as a Special Fund project through co-operation between the United Nations Special Fund, the Federal Government and the International Labour Organisation.

The first two levels of the system

A note on statistics. An introductory note on the statistical background of this profile is necessary here. Educational data are to be found in almost lavish profusion in the early reports of the Department of Education, up to and including the year 1957, but with the achievement of independence in that year publication of the reports, for some reason, ceased. It has consequently been necessary to glean avidly and widely to obtain recent figures.

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[1] See profile of Singapore, pp. 442-54.

A most prolific source of factual information has been an unpublished thesis submitted in May 1965 by Mr. Doh Joon Sue for the degree of Master of Arts in Economics at the University of Malaya. This study of 'Student Population in Primary, Secondary and Tertiary Levels in Malaya, 1963-77' is in essence a series of projections over a fifteen-year period, based upon past trends, of the populations of educational institutions of all types. The 218 tabulations involved are set against an intimate examination of the educational system and its institutions. The study is greatly indebted to Professor Ungku Aziz and the Faculty of Economics and Administration for making this work available. Unfortunately, since the base of the data is 1962, all further figures are projected, and it has been necessary to search elsewhere for more recent actual data.

A further major source has been a report, as yet unpublished, by the Unesco Regional Advisory Team for Educational Planning in Asia, made in December 1964, as part of the preliminary study in drawing up an 'Asian model' subsequently presented to the Meeting of Asian Ministers of Education in Bangkok, November 1965. This document, hereafter called the 'URAT Report', is largely confined to establishing projections, both of enrolments at all levels for a twenty-year period between 1962 and 1982, and also of the financial obligations engendered by such enrolments.

Other publications of the Ministry in mimeograph form, on teacher training and comprehensive education, for example, have been of considerable assistance, and an advance copy of the section on education for the *Official Year Book, 1964* has been made available.

Even when data have been rounded up, however, difficulties have remained: the complexity of the system; 'national' schools and 'national'-type schools; assisted schools, private schools; English, Malay, Chinese and Indian schools; many variants of teacher training at several levels; a number of experimental vocational-type lower secondary schools (included under 'vocational or general'?) have necessitated great caution in drawing deductions from sets of figures the basis of whose compilation is not always closely defined. It will be found, therefore, that the balance between the descriptive and the quantitative elements in the profile, or at least in those sections of it devoted to the first two levels of education, leans heavily to the descriptive. Furthermore, even when reliable data are available, the composition of tabular matter reflecting all the facets of the system does not lend itself readily to a treatment suitable for illustration for a study such as this: it is rather the raw material of planning, to be slowly digested.

Finally, in view of recent important developments, it has seemed wisest not to adopt a base date and aim at covering all fields only to the date (often 1962) when a wide coverage of data is available: in consequence it is necessary to date all figures, but such confusion as may be caused is the price

TABLE 11. Number of pupils in assisted schools (all media) by grade/level of school courses, medium of instruction and sex in the States of Malaya as at 31 January 1965

Medium	Primary level						Total
	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	
[illegible]							
Boys	53 085	48 356	51 567	47 259	45 956	40 271	286 494
Girls	53 623	48 015	50 394	43 780	40 314	32 729	268 855
Total	106 708	96 371	101 961	91 039	86 270	73 000	555 349
English							
Boys	29 557	26 996	25 995	23 267	21 161	19 232	146 208
Girls	20 295	19 993	17 461	17 723	14 320	12 408	102 200
Total	49 852	46 989	43 456	40 990	35 481	31 640	248 408
Chinese							
Boys	32 267	31 506	30 781	28 793	28 726	28 398	180 471
Girls	30 874	29 527	28 606	26 251	24 356	20 639	160 253
Total	63 141	61 033	59 387	55 044	53 082	49 037	340 724
Tamil							
Boys	6 577	6 684	6 401	5 561	5 153	4 459	34 835
Girls	8 044	7 795	7 279	6 212	4 982	3 681	37 993
Total	14 621	14 479	13 680	11 773	10 135	8 140	72 828
All media							
Boys	121 486	113 542	114 744	104 880	100 996	92 360	648 008
Girls	112 836	105 330	103 740	93 966	83 972	69 457	569 301
Total	234 322	218 872	218 484	198 846	184 968	161 817	1 217 309

exacted for keeping the profile as nearly abreast of its publication date as possible.

These difficulties have not been encountered at the third level, where it has only been necessary to deal with individual institutions. The University of Malaya, in its annual reports and its calendars, publishes a great deal of useful material, and the registrar and his staff have been most helpful in supplementing this information. Similarly, the principals of the Technical College and Serdang Agricultural College have also been able to place a great deal of valuable information at the disposal of the Study.

Primary education. Enrolment in primary schools has risen from 579,000 in 1950 to 1,217,309 in 1965, an increase of just over 100 per cent, though in recent years the rate of increase has slowed from 9 to 2.4 per cent as those

TABLE 12. Number of pupils in private schools (all media) by grade/level of school course, medium of instruction and sex in the States of Malaya as at 31 January 1965

Medium	Primary level[1]						Total
	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	
English							
Boys	378	362	480	1 062	2 320	2 206	6 808
Girls	260	206	243	348	963	1 119	3 139
Total	638	568	723	1 410	3 283	3 325	9 947
Chinese							
Boys	735	703	572	455	469	556	3 490
Girls	591	606	657	549	470	399	3 272
Total	1 326	1 309	1 229	1 004	939	955	6 762
Tamil							
Boys	116	50	36	27	13	10	252
Girls	114	62	27	12	9	11	235
Total	230	112	63	39	22	21	487
All media							
Boys	1 229	1 115	1 088	1 544	2 802	2 772	10 550
Girls	965	874	927	909	1 442	1 529	6 646
Total	2 194	1 989	2 015	2 453	4 244	4 301	17 196

1. All primary schools teaching in the Malay medium are assisted schools, and their enrolments are consequently all shown in Table 11.

children still to be enrolled became largely confined to those in the remoter areas, and as over-age pupils have been excluded under the policy of automatic promotion. The percentage of the total population of school age (6-11) enrolled in recent years has been calculated as 91.8 in 1962, 90.7 in 1963 and 90.5 in 1964.

In 1965 over 98 per cent of the pupils enrolled were attending public assisted schools, the percentage having risen from 92.6 per cent in 1956: the actual figures of private school enrolments were 63,000 in 1956 and 17,196 in 1965.

The most recent figures available are those for the beginning of the school year on 31 January 1965. Table 11 shows enrolment by sex and level for all assisted schools in all media, and Table 12 a similar enumeration for private schools.

TABLE 13. Primary school enrolments by media of instruction: 1956 and 1965

Stream	1956		1965	
	Enrolment	Percentage	Enrolment	Percentage
Malay	395 156	45.0	555 349	45.0
Chinese	293 491	33.4	347 486	28.2
English	140 640	16.0	257 995	20.9
Indian	48 212	4.6	73 315	5.9

A comparison between the enrolments in schools of the various media in 1956 and 1965 shows surprisingly little change (see Table 13). The only significant variation is the increased percentage in English schools and a corresponding decline in the percentage enrolment in Chinese schools. It is, however, interesting to note that with the campaign for the sole official use of the national language, it is the English, and not, as might have been expected, the Malay schools, which have benefited from the trend. Probably the prospect of entry to the university through the English-medium examinations was the controlling factor.

The survival rate has greatly improved. In 1950, 31.6 per cent of the pupils entering standard 1 reached standard 6: in 1957 the percentage had more than doubled to 70.4. The rise may be attributed in part to the increasing concern of parents with the education of their children, in part to the effect of automatic promotion, which usually, by excluding the possibility of the repetition of a year's work, acts as a stimulus and assists in combating drop-out.

The percentage of pupils passing from primary to secondary schools in 1962 was approximately 40 per cent: this figure, however, is no longer strictly comparable with more recent figures since the entry to secondary education is now non-selective. Statistics which would show the full significance of the introduction of comprehensive education have not yet been made available: it is, however, interesting to note that the percentage of pupils enrolled in standard 6, the top primary class, subsequently entering form I of secondary schools in the following year did not fall below 53 per cent until 1959, when it sank to fluctuate between 33.81 in 1959 and 33.01 in 1962, showing that at this stage secondary education had not kept pace with the growth of primary education. All that is now changing again. Enrolment figures for 1964 have not been made available,[1] but some indication of the extent of the change may be gathered by comparing the number of pupils in standard 6 in 1965, for which figures are available, with those in form I, i.e., 179,013 in the last year of primary education and 96,241 in the first year of secondary education; the remove form has been omitted from the last total since this already contains the remove form of 1964. It is clear that the prospect of another three years' secondary education without fees (Malay schools) or with a modest fee of $5 per term (and a number of extra charges for books, uniforms, laboratories, etc.) did not attract as many parents as might have been expected.[1] An analysis of the enrolments in urban and rural areas is clearly necessary to determine what effect the propinquity and reputation of the urban schools may have had in influencing recruitment. The change is also illustrated in Tables 14 and 15 below where the enrolments in form I, with a non-selective entry, may be compared with those in form II, where the wastage from the previous year's form I (the last selective entry) may be considered almost negligible.

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[1] At the time of writing.

In the primary field the basic aim of the first Malaysian Plan is to ensure that a place is available for every child of school age. This entails the provision of a further 300,000 places in Malaya and 32,000 in both Sabah and Sarawak. The building programme thus envisaged also aims at replacing or developing sub-standard schools. The implications of this programme for teacher training have been appreciated, and have been treated under the appropriate part of the programme.

The plan notes the desirability of eliminating dropouts and using improved teaching aids to make lessons more attractive, but enters into no details as to what specific steps are to be taken or what aids are to be employed.

Secondary education

(a) *Comprehensive and general.* Tables 14 and 15, which complete the picture of enrolment of which the primary section is shown in Tables 11 and 12, cover the lower (forms I-III) and upper (forms IV and V) stages of general secondary education (form I in Table 14, assisted schools, showing the first-year entry for comprehensive education) and also the two sixth form years, divided into arts and science courses.

In the enrolment tables the effect of the hurdles erected by examinations is very apparent. The decline in enrolments between form III and form IV indicates the effect of the Lower Certificate of Education examination, and the greatly increased enrolment in form III of the private schools (Table 15) is explained by the late entry of pupils who failed in this examination in assisted schools, where age limits do not permit repetition, into private schools where automatic promotion is, for obvious reasons, not practised. The yawning gulf between form V and pre-university studies in the sixth form

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[1] It appears, as this profile is completed, that the proportion of primary-school leavers proceeding to a comprehensive education course was 67 per cent.

TABLE 14. Number of pupils in assisted schools[1] (all media) by grade/level of school courses, medium of instruction and sex in the States of Malaya as at 31 January 1965

Grade/level of school course	Malay medium			English medium			All media		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Secondary level									
Form Remove	208	130	338	26 465	15 800	42 265	26 673	15 930	42 603
Form I	21 972	13 861	35 833	29 478	19 614	49 092	51 450	33 475	84 925
Form II	8 201	5 116	13 317	22 750	15 204	37 954	30 951	20 320	51 271
Form III	7 271	4 371	11 642	25 018	16 096	41 114	32 289	20 467	52 756
Form IV	2 318	1 521	3 839	10 829	7 574	18 403	13 147	9 095	22 242
Form V	1 556	801	2 357	9 370	6 786	16 156	10 926	7 587	18 513
TOTAL	41 526	25 800	67 326	123 910	81 074	204 984	165 436	106 874	272 310
Post-secondary level									
Lower VI science	42	2	44	820	137	957	862	139	1 001
Lower VI arts	20	2	22	451	356	807	471	358	829
Upper VI science	27	5	32	727	109	836	754	114	868
Upper VI arts	51	9	60	419	360	779	470	369	839
TOTAL	140	18	158	2 417	962	3 379	2 557	980	3 537

[1] Excluding technical institutes and secondary trade schools.

TABLE 15. Number of pupils in private schools (all media) by grade/level of school courses, medium of instruction and sex in the States of Malaya as at 31 January 1965

Grade/level of school course	English medium			Chinese medium			All media		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Secondary level									
Form Remove	428	102	530	—	—	—	428	102	530
Form I	4 264	2 137	6 401	3 481	1 434	4 915	7 745	3 571	11 316
Form II	6 016	3 120	9 136	5 077	2 168	7 245	11 093	5 288	16 381
Form III	8 625	4 193	12 818	4 084	2 171	6 255	12 709	6 364	19 073
Form IV	5 054	2 204	7 258	3 278	1 768	5 046	8 332	3 972	12 304
Form V	2 088	836	2 924	4 474	2 535	7 009	6 562	3 371	9 933
TOTAL	26 475	12 592	39 067	20 394	10 076	30 470	46 869	22 668	69 537
Post-secondary level									
Lower VI science	42	5	47	—	—	—	42	5	47
Lower VI arts	—	—	—	—	—	—	—	—	—
Upper VI science	43	8	51	—	—	—	43	8	51
Upper VI arts	—	—	—	—	—	—	—	—	—
TOTAL	85	13	98	—	—	—	85	13	98

is narrowly bridged by the School Certificate examination in one form or another, followed by a further entrance examination, since places and staff are still comparatively scarce. The former is, of course, a leaving examination in its own right, and the gateway to many types of training for nursing, teaching, commercial and technical work, as well as a qualification for employment.

The percentage of the 12-16 age-group enrolled in general secondary schools for the year 1962 was 27.1—221,000 students out of 819,100—not a high figure for a country as economically active as Malaya. The percentage of enrolment will of course have increased considerably with non-selective entry: the factor that has yet to be established is the total number of passes over what is now the first hurdle, the Lower Certificate of Education, assuming that the standards of the examination are maintained at their present level. The average proportion of passes in this examination between 1957 and 1960 was 55.3 per cent for boys, and 63.5 per cent for girls: in 1963 places in upper secondary schools were found for 46 per cent, or 52,554 of the 114,203 candidates. A number of those who are not admitted to the assisted secondary schools migrate as fee-payers to private schools, others enter day training colleges to take a three-year training course for teaching in primary schools.

In upper secondary schools students are divided into arts and science courses on the basis of past scholastic performance—not always a sure guide even three years after becoming '11-plus'! In two years' time they sit for the Malaysian Certificate of Education or the Cambridge Overseas Certificate,[1] and successful candidates consider whether they wish to compete for sixth form places.

The number of school candidates sitting for the Cambridge School certificate rose from 4,443 in 1955 to 9,673 in 1961, the mean percentage of grade I or grade II passes (the level necessary for admission to sixth-form work) being 37 per cent.

Students who continue with pre-university studies reach, two years later, a Higher School Certificate examination, in which a pass in two subjects at principal level or one subject at principal and two at subsidiary level are the minimum qualifications for university entrance. In most cases a pass in the general paper is also required, and various faculties have their own subject requirements dictated by course needs: thus for engineering a candidate offering one subject at principal level and two at subsidiary must have at

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[1] The Federation of Malaya Certificate of Education is awarded to candidates who offer a paper in the Malay language instead of the compulsory English-language paper. Candidates who take both papers can obtain both certificates, or one or the other—or, of course, neither. Since 1962, candidates have been able to sit Malay-language versions of the English examination. Three hundred and eighty-five candidates and 887 private candidates elected to do so in that year.

TABLE 16. Cambridge Higher School Certificate examination results, 1958-61 school candidates

Year	Number sat		Number of passes[1]											
			3P's and above with GP		3P's and above with or without GP		2P's and above with GP		2P's and above with or without GP		1P and 2S/2P's and above with GP		1P and 2S/2P's above with or without GP	
	Arts	Science	Arts	Science	Arts	Science	Arts	Science	Arts	Science	Arts	Science	Arts	Science
1958	257	363	101	124	111	156	161	188	171	220	188	224	219	290
1959	335	410	140	159	159	209	220	212	239	262	247	243	302	336
1960	331	368	154	182	182	222	218	232	246	272	238	257	290	328
1961	453	464	222	231	253	284	313	282	344	335	360	316	419	397
						Percentage of passes (over total sat)								
1958	—	—	39	34	43	43	63	52	67	61	73	62	85	80
1959	—	—	42	39	48	51	66	52	71	64	74	59	90	82
1960	—	—	47	50	55	60	66	63	74	74	72	70	88	89
1961	—	—	49	50	56	61	69	61	76	72	80	68	93	86
Mean			44	43	51	54	66	57	72	68	75	65	89	84

1. P = principal level; S = subsidiary level; GP = general paper.

least subsidiary level passes in mathematics, physics and chemistry. Candidates may also be admitted to the second year in agriculture and science, and the first year of medicine, if they have passed three subjects at principal level, or two at principal and two at subsidiary level.

These various requirements account for the detailed nature of the table[1] (Table 16) showing Higher Certificate results from 1958 to 1961. Candidates without a pass in the general paper, a situation revealed by the table, may sit for the university's own general paper if they are not excused.

The pass rates are extremely high, over 80 per cent of the candidates obtaining the minimum qualifications for university entrance, and over 50 per cent what would now be described as three 'A-level' passes. The figures contrast strongly with those available for 'private' candidates, of whom there were 1,071 in 1961, with a minimum 'pass' percentage of 42 per cent in arts and 89 per cent in science. Forty-nine candidates out of 618 taking arts subjects obtained three principal level passes, and 222 out of 453 candidates taking science. The discrepancy between arts and science results here may be largely ascribed to the very considerable numbers of students at the technical college sitting for the examination as private students and then, if successful, continuing their studies at the university—a form of 'brain-drain' which is perhaps more appreciated by the students than the college which, while serving both its professional and technical courses, is willy-nilly also acting as a preparatory school for the university.

The present status and the future trend of Malayan education is admirably summarized by Table 17, also reproduced from Doh Joon Sue's study,[2] which first traces a cohort of 1,000 pupils through the system from 1949, when they entered standard 1, up to 1962, when the survivors were admitted to university. The survival rate was 4 per thousand (614 from an original 150,083). The table then summarizes projections of the fate of a similar cohort entering the system ten years later in 1963, based upon trends and policies clearly defined, and these projections indicate that the survival rate by 1977 should be between 14-20 per thousand, the range allowing for both the effects of the new 'comprehensive education' and possible changes in requirements for university entrance. The conclusion is that the chances of a child entering standard 1 in 1963 finally obtaining entrance to the university in 1977 are between three and five times as great as they were for a similar child in 1949.

(b) *Technical secondary education*. Technical education presents problems the solution to which has yet to be put to the test. In 1957, when industrialization, beyond such forms as were called for by rubber production and tin mining, played little part in the economy, the provision for vocational and

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[1] Doh Joon Sue, *Student Population in Primary, Secondary and Tertiary Levels in Malaya, 1963-1977.*

[2] op. cit., Table 218, p. 351.

TABLE 17. Survival rates in the Malayan system, 1949-62 and 1963-76

Year and standard	Survival	Year and standard	Survival
1949 Standard 1	1 000	1963 Standard 1	1 000
1950 Standard 2	819	1964 Standard 2	964
1951 Standard 3	717	1965 Standard 3	923
1952 Standard 4	597	1966 Standard 4	864
1953 Standard 5	469	1967 Standard 5	789
1954 Standard 6	319	1968 Standard 6	730
1955 Form 1	158	1969 Form 1	293
1956 Form 2	133	1970 Form 2	277
1957 Form 3	127	1971 Form 3	261
1958 Form 4	93	1972 Form 4	147
1959 Form 5	83	1973 Form 5	142
1960 Lower form 6	6	1974 Lower form 6	30
1961 Upper form 6	6	1975 Upper form 6	25
1962 University first year	4	1976 University first year	14/20

Source: *Student Population in . . . Malaya, 1963-1977*, op. cit.

technical training at the second level was meagre in the extreme. There were two rural trade schools, three secondary trade schools and one technical institute (a secondary technical school) with a total student population of 686.

The rural trade schools provided a three-year post-primary course with a strong rural bias leading to the Lower Certificate of Education, the secondary trade schools recruited pupils who had obtained passes in mathematics and science in the Lower Certificate of Education, and prepared them for possible future admission to the diploma courses of the Technical College (see pp. 322-3 and pp. 379-84) and the technical secondary school prepared candidates on a semi-technical curriculum for the School Certificate examination. The medium of instruction in the first two types of school was Malay, and as might be expected they were largely attended by Malays: the Chinese formed two-thirds of the enrolment of the secondary school, a proportion which has been maintained with the development of the system.

By 1 January 1965 the number of fully assisted technical schools had risen from 6 to 15 (2 technical secondary schools, 2 secondary trade schools, 9 rural trade schools and 2 domestic science schools) with a total enrolment of 2,124 (1,591 boys and 533 girls), and a staff of 154. In addition, no fewer than 31 private 'commercial schools' had been established, with an enrolment of 7,194: some 75 per cent of their pupils were Chinese or Indian.

The advance is far from spectacular, though it should be added that the curricula of a number of secondary schools have been broadened by the addition of vocational subjects. The over-all total of 40,528 pupils receiving instruction in these classes is not unimpressive, though perhaps the

15,430 girls being instructed in domestic science will contribute only indirectly to the growth of the economy. There were 5,613 pupils being taught 'commercial subjects', 8,447 woodwork, 3,973 metal work, and 7,107 some unspecified vocational skill.

The government had been searching for a policy to strengthen the output of vocationally and technically equipped students, and the schools under review may be considered largely as experiments towards this end. The policy decision has now been made, and is being implemented, to introduce 'comprehensive education', and accordingly the rural trade schools and the secondary trade schools are being absorbed in the comprehensive grades 7 to 9, which are planned to lay a foundation equally suitable for technical or academic education at a later stage (see above, pp. 323-6).

The development now to be awaited is the expansion of technical education at the upper secondary level, either at technical secondary schools or at specialist vocational schools in agriculture and other basic vocations. A very considerable programme of investigation, planning and material activity is now called for: investigation into employment needs, student selection and guidance, and methods of teaching technical subjects (planning of teacher training and the application of the programme to the remoter rural areas), action in the erection of buildings and the recruitment of teachers. To this list must be added another formidable factor, the time element. The first 'comprehensive' students will emerge at the end of 1967, and the new schools must be ready for them at the beginning of 1968.[1]

The teaching service and teacher training

The early history of Malaya with its Straits Settlements colonies, its Federated and Unfederated States, naturally found an echo in the organization of the teaching profession. Some teachers were employed by government, some by assisted schools on conditions of service prescribed, to a certain extent, by grant-in-aid, and some under whatever terms they could obtain from the proprietors of private schools. Thus when the Razak Committee examined the situation in 1956 it found a multiplicity of scales and a wide variety of terms of service, and few opportunities for teachers to obtain promotion or transfers from one grade to another. The committee therefore recommended the establishment of a Unified Teaching Service with one national scale to be entered at points adjusted according to qualifications and experience, with promotion bars to be passed by additional qualification or proved merit and experience. Teachers would be registered, but this would give them admission to a profession, not to government service.[2] Teachers

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[1] Readers anxious to pursue the problems of technical education may wish to refer to the concise 'models' outlining patterns both of technical education and a full education system to be found in Volume I of this study.

[2] This solution is undoubtedly democratically sound since it places considerable

TABLE 18. Teachers and enrolments in assisted schools, 31 January 1965

Level	Enrolment	Teachers		Pupil/teacher ratio
		Trained	Untrained	
Primary schools	1 217 309	34 624	8 039	28.5 : 1
Secondary schools	275 847	8 123	2 607	25.7 : 1

would be employed by the managers or governing bodies of schools, and would be subject to dismissal by them subject to the concurrence of the local authority (now the chief education officer) in the case of primary teachers, and the Minister, in the case of secondary teachers.

Such a unified service came into operation five years later, in 1961, in all assisted schools, but not in private schools. Scales of pay, points of entry (an extremely complex matter in view of past anomalies) and conditions of service are laid down in rules made by the Minister on the authority of the Education Ordinance 1957, and a Teachers' Provident Fund has been established.

A National Joint Council of Teachers with official and teachers' panels, on the Whitley Council[1] pattern, has been set up and is currently dealing with such problems as medical facilities, housing, equal pay for women teachers and other professional matters, largely salary questions, such as are being dealt with by similar bodies throughout the world.

Table 18 shows the strength of the teaching establishment in assisted schools on 31 January 1965.

The ratios, however, save for purposes of international comparison, are of limited validity on account of the intervention of various complications such as the scarcity of teachers for Tamil schools, the more flexible staffing required for sixth-form work, the location of schools, and the varying reputation of managers: the range within which these ratios represent an average is extremely wide.

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authority, and should therefore create a real interest, in local school boards of management. It also avoids the worst difficulty of equating terms of service of teachers with those of civil servants with the same basic qualification. On the other hand, it makes joint action in respect of the teaching service very unwieldy, since a rule is generally necessary, to be made by the Minister, to validate action, and mobility is likely to be influenced very heavily by local circumstances. The key to the situation is to be found in the capacity for management of the local boards. In Malaya many of these are well experienced, and probably the decision was the right one. The difficulties experienced, on a much higher level, it is true, by the very non-professional founders of Nanyang University, Singapore (see profile, pp. 449-50) show, however, what difficulties local managements can experience.

[1] The internal arbitration machinery developed in the United Kingdom in which equal numbers of employees' and employers' representatives thrash out problems of mutual concern.

TABLE 19. The Integrated Teacher-Training Programme

Name of college	Specializing in	Relevant subjects offered for training
Malayan Teachers' College (Penang)	Mathematics and science	1. Mathematics 2. Additional mathematics 3. General science 4. Physics 5. Chemistry 6. Biology
Malayan Teachers' College (Kuala Lumpur)	English/Chinese and arts subjects including music	1. English language and literature 2. Chinese language and literature 3. Music 4. History 5. Geography 6. Malayan studies
Language Institute (Kuala Lumpur)	Malay/national language and arts subjects (in Malay medium)	1. Malay language and literature 2. National language 3. Music 4. History 5. Geography 6. Malayan studies
Technical Teachers' Training College (Kuala Lumpur)	Technical and vocational subjects	1. Industrial arts 2. Woodwork 3. Metal work 4. Engineering science 5. Technical drawing 6. Surveying
Specialist Teachers' Training Institute (Kuala Lumpur)	Physical education, home science, commercial studies, arts and crafts	1. Art 2. Needlework and dress-making 3. Cookery 4. General housecraft 5. Commercial studies 6. Commerce 7. Principles of accounts
Malayan Teachers' College (Johore Bahru)	Agricultural science, home science	1. General science 2. Mathematics 3. Agricultural science 4. Chemistry 5. Biology 6. Botany 7. Needlework and dress-making 8. Cookery 9. General housecraft

Different types of training are provided for primary and secondary teachers. Candidates for primary teaching are trained in one of four streams, A to D, according to the language of instruction. In all four streams three-year courses have to be followed by candidates with only three years' secondary education plus Lower Certificate of Education passes in two languages, or, alternatively, a pass in a selection examination. Candidates with two further years of secondary education and a School Certificate do not need a language credit in that examination: if, however, they have a credit in Malay or English the three-year course is reduced by one year.

Three residential colleges are available for Malay-medium teachers in training; there are also two day training colleges and eleven day training centres for intending primary teachers, of which two offer courses in Chinese and one in Tamil. The average annual output is some 2,000 new teachers: the intake in 1964, however, was only 1,875, which with wastage over three years may show an appreciable decline.

Some two hundred primary-school teachers whose qualifications do not permit them to enter a training college are receiving instruction by correspondence: it is a little difficult to believe that if, after their experience, they are unable to profit from a training course, tuition by correspondence will be sufficiently effective to justify their retention.

The training of teachers for secondary schools normally entails a two-year course in one of six residential colleges, of whose past history a short account has been given above (pp. 310-11). The six colleges all contribute to an integrated programme which enables each to specialize in certain fields of the curriculum: this prevents duplication and the uneconomic use of specialist staff. Entrants are assigned to a particular college in accordance with their previous aptitudes or present interests in the special fields of the college. The nature of this specialization is shown in Table 19.

It will be noted that, with the exceptions of the colleges at Penang and Johore Bahru, all the institutions are in Kuala Lumpur. The total enrolment in the two-year course in the six colleges was 1,720 in 1964; the average output is around 800 new teachers a year.

The basic qualification for entry is a School Certificate or its equivalent, together with a credit in either Malay or English (or Chinese at the Malayan Teachers' College, Kuala Lumpur) and also credits in the subjects in which the candidate proposes to specialize: City and Guilds examinations serve as the criteria for specialization in technical subjects. An allowance is paid during training, and a period of five years' teaching service is obligatory on completion of the course.

Supplementing this training are one-year in-service specialist courses in such fields as commercial subjects, the teaching of the blind and deaf, and the use of audio-visual aids.

In the past it has been possible for holders of the Higher School Certificate to serve as probationary teachers for two years while receiving instruction from an overseas correspondence college, but this practice has been roundly condemned by a recent Special Committee which reported in July 1964 on certain aspects of secondary teacher training.[1]

The committee fully endorsed the Integrated Teacher Training Programme 1964, to which Table 19 above refers, considering that the concentration of highly qualified specialist staff at the appropriate colleges would prove most advantageous in securing the specially trained teachers required for the various facets of 'comprehensive education'.[2]

It was felt that the economic position of the country did not warrant an extension of the period of training as appeared to be the trend in the West, but that: (a) holders of the Higher School Certificate should undergo one year's training followed by a further year of practice teaching under supervision, together with week-end training; (b) School Certificate holders should continue to receive two years' training, and holders of the Lower Certificate of Education three years' training; (c) possession of a School Certificate might well become the lowest qualification for admission to teacher training, in view of the development of the secondary schools system; and that (d) forms of training should, as far as possible, be residential.

The report next makes the admirable proposal that all teacher training should be reorganized into a common pattern with no distinctions drawn between primary and secondary training.[3]

After these general considerations the committee proceeded to deal with the specific problems of the supply of teachers for the additional enrolments anticipated in grades 7-9, for which, on the usual staffing basis, another 3,909[4] teachers would be required in 1965, the first year of the innovation, a requirement which would increase to 4,340 by 1970. The following recommendations were made:

1. A full-time two-year residential course should continue to be recognized as the basic form of training. It appears, though it is not explicitly stated, that priority of admission to this type of training should be given to candidates with Higher School Certificates.
2. To meet the emergency, the second year of training should become temporarily non-resident.
3. To supplement training college provision, sixteen regional training centres

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[1] *Final Report of the Special Committee on the Training and Supply of Teachers for Comprehensive Secondary Schools* (Kuala Lumpur, Ministry of Education, June 1964, mimeo).

[2] The question as to whether the generalist teacher is not, at grades 7-9, more useful than a series of specialists is not discussed in the report, though a paper presented to the committee by the Educational Planning and Research Officer of the Ministry of Education (*Final Report*, Annex, Paper 12), estimated that 50 per cent of the secondary-school teachers required between 1965 and 1970 should be 'general purpose teachers'.

[3] The committee recognizes and accepts the corollary that basic salary scales should not discriminate between primary and secondary teaching.

[4] There is a somewhat unrealistic precision about this estimate.

should be established, with courses similar to those in the colleges. (Teachers allocated to the regional centres would in fact be attached to nearby schools where they would teach for half the school week, and observe and study for the other half, completing their training by attending classes at the regional centres during the week-ends and at the training colleges during the school vacations.)

4. As a longer-term measure, the establishment of two additional training colleges was advocated, one on the east coast, specializing in arts subjects and languages, the other at Ipoh specializing in mathematics and science.

The committee, strongly influenced by the Professor of Education at the University of Malaya, endorsed her proposal to develop sandwich training courses by which in alternate terms students at the training colleges would either be instructed in the professional subjects such as the psychology of education or special subjects such as physical education, at the college; or be attached to the sixth forms of selected schools where courses on content and method could be provided by, and teaching practice carried out under the supervision of, the school staff.[1]

By jettisoning their students in alternate terms the colleges would be able to double their intake, provided that the necessary alternative accommodation could be found for those engaged in school practice. A further advantage claimed is that the college lecturers, being freed from what are apparently regarded as the chores of the supervision of school practice and teaching on content, would be able to devote time to the preparation and delivery of advanced in-service courses and engage in specialist studies, as well as teaching 'the usual academic courses of study'. This is not an unattractive prospect inasmuch as it is intended to raise the status and academic standing of the colleges, which would undoubtedly have repercussions on the attractiveness of the teaching profession: it would, however, be necessary to guard against any tendency for the colleges to become dispensers of additional qualifications (and salary increments) instead of centres of educational training, experiment and discussion.

From the estimated 3,909 teachers required in 1965 the output of the training colleges, estimated at 762, may be subtracted. This would leave 3,183 to be trained through the regional centres, of whom 2,028 would be required in the English stream and 1,135 in the Malay stream. However, it was decided that such students who would in fact be members of the staffs of those schools where they were practising and learning during the weekdays, should, for staffing purposes be assessed on a basis of three students to two regular teachers, since their services would be available in a class for only half the week; consequently it was necessary to augment the number of trainees to 4,774, i.e., 159 units of 30 students attending sixteen regional centres at the end of each week of teaching and observing.

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[1] Who are surely most heavily engaged already.

So-called 'crash training programmes' are a frequent feature of developing education systems, and it has seemed useful to describe this attempt to meet a very considerable problem in some detail. There are many weak links in the chain: the quality of the recruits, the competence of the staffs required to supplement their normal duties by instructing at regional centres during the week-ends, the nature of the teaching to be observed by students, and the extent of the supervision which can be given to their own efforts at teaching. It is unfortunate that two experiments of a major nature—the design of curricula for the 'comprehensive education', and the training of teachers to put the new content into practice—should have been carried out simultaneously. As with many aspects of development in Malaya and indeed in many other developing countries, the observer has the first impression that the documentation of a scheme may be meticulously prepared, but the results in practice appear to depend on a large number of factors which are either difficult to assess in advance, or which have been somewhat summarily disposed of in the enthusiasm of initial planning, with the result that a policy of improvisation has only been delayed, not averted. An external assessment of the progress of the whole concept of 'comprehensive education' would surely be of great value not only to Malaya, which has embarked upon a bold venture, but to all countries building up on the base of their educational pyramid.

The Faculty of Education, University of Malaya[1]

Courses leading to a Diploma in Education were first offered in 1963 in a School of Education, the institution of which was considerably assisted by a grant of $1.5 million from the Ford Foundation. The initial staff was a professor and five lecturers, and there was a student body of 35. By 1965 the school had become a faculty, the range of studies had increased to offer B.Ed., M.Ed. and Ph.D. degrees, and the staff had been augmented by five more lecturers and three assistant lecturers: of the total staff three were expatriates, and eight were graduates of the young university itself. The student body had risen to 150, as Table 20 shows, and in the academic year 1966/67 it is expected to rise to 200.

An analysis of the students in 1965 shows that only one, from Singapore, came from outside Malaya, that the numbers of men and women were 70 and 80 respectively, and that 79 were Chinese, 39 Indian or Ceylonese, 27 Malay and five 'others'. The proportion of Malays is most disappointing.

The diploma course in education requires one year of full-time or two years of part-time study after graduation from the University of Malaya or

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[1] It seems appropriate at this point to give some account of the training in education given at the third level, even though a note on the Faculty of Education is thereby cut off from its appropriate context in the section devoted to the University of Malaya.

TABLE 20. Enrolment in the Faculty of Education, 1963-65

Academic year	Course				Total
	Diploma	B.Ed.	M.Ed.	Ph.D.	
1963/64	35	—	—	—	35
1964/65	88	—	—	—	88
1965/66	134	14	1	1	150

other approved universities. The course covers the usual professional subjects, including two 'method' courses, optional courses in statistics and measurement, applied linguistics or comparative education, and a minimum thirteen weeks of teaching practice. The external examiner is Professor E. A. Peel, professor of education at the University of Birmingham.

The B.Ed. candidate must have: (a) a Diploma in Education or an equivalent qualification; and (b) not less than two years' teaching experience. The programme involves one full year or two years of part-time study, and includes courses on the methodology of educational research and two other topics announced from time to time.

The next step is the master's degree, whose candidates require a B.Ed. degree of the university or an approved qualification (which will surely from time to time set some nice problems in equivalences). Again this involves a year of full-time or two years of part-time study, with the added qualification that the feasibility of any other part-time employment to be followed by the candidate must be assessed. The examination is based upon the submission of a dissertation and/or a written examination and/or a *viva.*

Finally, the university regulations governing the award of a Ph.D. apply to the Faculty of Education just as to any other faculty, the normal requirement being two years' supervised study and research terminating with the submission of a thesis.

This is certainly an ambitious programme for a young faculty with an equally young and, however devoted, relatively inexperienced staff, who, in addition to the usual duties of teaching, supervising and developing their own studies, have extra-mural responsibilities such as sitting upon government curriculum committees, and also the duty of developing: (a) a Testing Centre (with assistance from the Educational Testing Service, Princeton); (b) a Computation Laboratory (to house a statistical IBM 101); (c) a child study unit; (d) a textbook library; (e) a Reference Source Centre—presumably a clearing house; (f) a multi-purpose science laboratory; (g) a Centre for Educational Technology—which appears at the moment to be based upon audio-visual aids, though it will presumably branch out into programmed instruction and automatic teaching devices. Certainly no educational stone has been left unturned.

It would seem that much anxious deliberation must have centred on the question as to the relative urgency to be given to satisfying: (a) the national need for an intensification of the training of teachers for fifth and sixth forms of secondary schools, which desperately need graduate staff, a need which will become even more acute with the impetus about to be given by the fruits of 'comprehensive education'; and (b) the development of a fully articulated skeleton for the future development of the body of the Faculty; the choice fell upon the second of the alternatives.

From the national point of view the urgency of the need to produce first-class trained graduate teachers, a move which will in turn supply the university with an entry of good calibre, and ultimately the nation with high-level manpower of enhanced quality, is scarcely reflected in the time-table of educational advance: four years from entry to produce a trained graduate, and, at optimum rates of advance, another three years to produce a B.Ed., yet another to produce an M.Ed., and two more years to achieve a doctorate, a total minimum range of nine years which in practice is scarcely likely to be practicable.

It is difficult to avoid questioning whether a three-year B.Ed. course designed for award as a first degree, with service teaching from the other faculties to assist in content courses, would not have served the urgent and immediate problems of the country more effectively. Nevertheless, viewed internally, the progress and spread of this young faculty is indeed impressive.

While most of the profiles would, at this stage, proceed to discuss education at the third level, it has seemed preferable here, since such facilities are available only in Malaya, to complete the picture of primary and secondary education in the Federation as a whole by turning to Sabah and Sarawak before returning to Malaya for an account of the facilities for higher education established within the Federation itself.

SABAH[1]

Education policy in Sabah is formulated by a Board of Education, first constituted in 1956: it has a large and widely representative membership, chiefly unofficial. The main aims of the board are to provide a school place for every child in the 6-12 age range, and to develop technical education and teacher training.

A 'member' system of government had been introduced in 1963 with a member nominated as Member for Education. Under the new State Constitution, promulgated on Malaysia Day, the member became Minister of Social Welfare, a portfolio which includes the State interests in education.

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1. See also Hunter, p. 122 (Sabah), particularly in relation to school output.

The Department of Education in Sabah, on the foundation of Malaysia, became part of the Federal Ministry, but in accordance with the report of the Intergovernmental Committee (see above, p. 283) the existing policy and system of administration of education will remain undisturbed until the Sabah Government agrees otherwise. Financial control, however, is with the Federal Ministry.

The racial distribution of pupils in all schools in 1963 was: 32,629 Chinese, 32,917 Indigenous people, 457 Europeans and Eurasians, 4,054 others, total 70,057. This shows a remarkable increase in the rate of schooling of the indigenous people (in 1962 indigenous pupils numbered 25,657, as compared with 33,621 Chinese); and this increase has been spread over each of the four main indigenous races. It appears as if a start has been made to overtake the formidable leeway in education established by the Chinese, though it may be some time before this impetus is communicated effectively to the secondary schools, though indigenous secondary enrolment is rising. In 1962 indigenous pupils formed one-fifth of the secondary population, a much better position than that revealed by the 1960 Census: the figures relating to the educational attainment of the total population groups over 10 years of age were:

	Chinese	*Indigenous*
Completed primary	9 004	3 264
Completed lower secondary (form III)	9 353	262
Completed full secondary	1 178	92
Completed training college	105	113
Completed university	115	2

Primary education

The primary course is one of six years, the normal age of entry being 6, though large numbers of over-age children are admitted. There are three language media, English, Malay and Chinese, the schools all working, however, to a common syllabus. Malay and Chinese schools teach English as a second language where teachers able to do so can be found, and Malay is a compulsory second language in English and Chinese schools. It is clear that the Federal Government will press for the development of education in Malay, particularly in the key area of secondary education, where English is the main language of instruction, though, as will be seen, there is some provision for secondary education in Chinese. The question of the language of instruction is the first area in which the influence of the Federal Department of Education on a policy trend can be traced.

There are five types of primary school, as shown below. Government primary schools, which with five exceptions teach in Malay, are mainly situated in the rural areas or small townships. Children often have to travel long distances to school, and in harvest and festival times, and in bad weather, attendance is liable to fall off heavily. The number of pupils sitting for the terminal examination (grade 6) in Malay has risen from 216 in 1956 to 1,872 in 1963, a considerable testimony to the increasing interest in education of the rural population. There were 921 passes. The average age of the children entering for the examination remains 15: in theory it should of course be 11+.

Enrolments in the five types of primary schools in 1963[1] were: government primary schools, 20,930; mission schools (aided), 11,882; Chinese schools (aided), 22,852; voluntary 'local committee' schools, 6,818; estate schools, 1,000; total 63,482.

The mission schools, with the exception of a few Chinese-medium schools, teach in English. They receive grants-in-aid to cover teachers' salaries and allowances, the maintenance of premises and the purchase of equipment. Capital grants for new buildings are also available.

In 1963, 1,840 candidates were entered for the terminal examination in English, 685 of them passing. These schools also entered 656 pupils from bridge Classes (i.e., classes in which pupils originally taught in Malay or Chinese spend two remove years, not one, as in Malaya, preparatory to secondary school work in English): 360 qualified in English and arithmetic for entry into form I.

The majority of the local committee schools are Chinese, controlled by community groups or associations of Chinese businessmen: many have a long history dating back to the time of the North Borneo Chartered Company. A total of 2,138 pupils were entered for the terminal examination in Chinese, of whom 827 passed. Their average age, 14, was the lowest in the system.

The voluntary schools (and the few estate schools) receive grants-in-aid, and an in-service course for their teachers has been introduced; teachers so trained enter government service, and their schools are taken over by government when all the staff have been so trained. This policy is developing steadily: in the meantime, the voluntary schools serve a most useful purpose in areas where government has not yet been able to establish a school.

Secondary education

In 1963[2] enrolment figures in secondary schools were as shown in Table 21. There were thirty-two secondary schools, eight of which offer a full five-year course in the English medium, in which the Junior Certificate is taken in form III and the School Certificate in form V. Two secondary schools in

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1. In 1964 the enrolment rose by 12,398 to 75,880. This appears to amount to some 70 per cent of the 6-12 age group, though the actual percentage is less owing to the large number of over-age pupils.
2. In 1964 there were thirty-six secondary schools with a total enrolment of 8,384, an increase of 1,809. About 40 per cent of pupils completing primary education enter secondary schools.

TABLE 21. Sabah: enrolment in secondary schools, 1963

	Boys	Girls	Total
Government	1 090	424	1 514
Mission	1 908	1 004	2 912
Local committee	1 308	785	2 093
Private	39	17	56
TOTAL	4 345	2 230	6 575

Jesselton provide sixth form courses to Higher Certificate standard: Sabah College with a science side, and All Saints School with an arts side. A course to the Junior Certificate (form III) is offered by thirteen more schools, two with both English and Chinese streams. Six have yet to reach this standard. Three schools provide a six-year secondary education in Chinese, and also enter candidates for the Cambridge Overseas School Certificate examination.

The Department of Education conducts Junior and Senior Certificate examinations, the former in English and Chinese, the latter in Chinese. The Cambridge University Local Examinations Syndicate conducts the Joint Overseas School Certificate and General Certificate of Education; and also the Cambridge Higher School Certificate examination. Examination results for 1963 were:

Junior Certificate (English): 567 passes from 728 candidates.

Junior Certificate (Chinese): 262 passes from 352 candidates.

Senior Certificate (Chinese): 68 passes from 99 candidates.

Cambridge School Certificate: Grade I, 53; Grade II, 89; Grade III, 71; GCE, 33; failed, 43 candidates. Eight private candidates also obtained a Full Certificate.

Cambridge Higher School Certificate: 20 passes from 52 candidates.

A number of the candidates entered for the Higher Certificate examination did not sit for the full examination, a pass in which requires successful attempts in two principal subjects: 37 candidates, including 5 private candidates, obtained statements of success in one or more subjects at principal or subsidiary level.

Technical education

A Trade School at Jesselton, first established at Menggatal in 1948, trains at artisan level: save in carpentry, which can be taken up after a primary school course, some secondary education is expected from recruits, and it is hoped to raise the entrance qualification to the Sabah Junior Certificate level. The enrolment in the two-year courses in 1963 was: carpentry, 27; electrical trades, 29; fitting and turning, 28; mechanics, 37; welding and blacksmithing, 26. The enrolment of 147 was passed in 1964, when it rose to 165; 19 trade certificates and 48 certificates of attendance[1] were awarded during the year.

Evening classes are held in motor mechanics and electrical fitting, but are poorly supported.

A second specialist trade centre is to be opened at Sandakan on the east coast, where there is a growing need for young men with trade skills.

Clearly such technical training is quite incapable of meeting the demands for technical personnel made both by government departments and the private sector,[2] and complete reliance is still placed upon expatriates, either European, Tamil or Ceylonese. Hunter estimates that, in 1970, 80 Category I, 190 Category II and 500 Category III technical staff will be needed. The key to the situation lies in the development of secondary education which, having reached the stage of producing an output of over 200 pupils with School Certificates in a year, must now, in addition to expanding this source of potential Category I manpower, consider the development of secondary courses which will provide an adequate pre-technical training for post-certificate entry to a technical institute, whether in Borneo or Malaya.

Teacher training

In 1963 there were 2,485[3] teachers in the primary and secondary schools of whom 1,618 were men and 867 women: of these 190 were trained, and a further 85 held a graduate or equivalent qualification. All but 31 had completed a secondary school course.

There are two training colleges, Gaya College, opened in 1963 on a very fine site in Jesselton, and Kent College at Tuaran, 25 miles away.

Gaya College produces teachers for primary and lower secondary classes and specialist teachers of English. The annual intake is 120 (with a Sabah Junior Certificate or a Cambridge School Certificate) and the course lasts for two years.

Kent College offers two courses: a three-year course in the Malay medium for students with a Primary Leaving Certificate, and a two-year course in Chinese for students with a Junior Certificate. All students at Kent College are required to have had at least one year's experience as pupil-teachers before admission to the college.

The Training Centre at Jesselton for teachers in native voluntary schools gives a six-month intensive course to teachers with at least five years' experience.

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[1] It may be questioned as to how long this very non-commital British form of qualification will survive.

[2] The *Straits Times* reports (14 April 1966) that the New Zealand Government is to build a $3 million vocational training institute at Likas which will accommodate 240 students on a three-year course. Three Sabahan teachers would be trained in New Zealand as staff members. No other details were available at this time.

[3] In 1964, 2,687.

The combined output of Kent and Gaya Colleges is only 200 teachers a year, and first rough estimates indicate a required annual output to 1970 of 490. To the present output of 200 can be added perhaps another 20 teachers trained overseas. This leaves the balance to be found either by recruitment from overseas, or from under-qualified staff. This is clearly a major problem for the Federal Ministry: present proposals include the enlargement of both colleges.

Adult education

There is an increasing demand for adult education classes, and regular courses in commercial subjects are held in Jesselton, as well as classes in English, Malay language and mathematics. Chinese associations have also been extremely active in organizing courses in literacy, Malay language, dress-making and home science. A correspondence course called 'I can speak English' is also conducted by the Department of Education; it is used extensively by teachers.

Higher education

It will already have become clear that it has not yet proved practicable to provide facilities for higher education. The question is dealt with in conjunction with the same problem in Sarawak, at the end of that section (pp. 355-7).

SARAWAK[1]

As in Sabah, education is a federal subject, but the policy of the State remains at present undisturbed: the main aim of this policy has been to narrow the gap between the indigenous peoples and the Chinese. As recently as twenty years ago a census (1947) revealed that 98 per cent of the largest indigenous group, the Sea Dayaks, were illiterate, that there was not one graduate among an indigenous population of 395,417, and that only one (a Malay) held a Cambridge School Certificate. More significantly, the second aim of policy is to weld the two forms of education into a unified national system.

Primary education

In 1964 of 1,038 primary schools, 654 were controlled by local authorities who have the power to levy an educational rate: these schools for Dayaks and Malays have grown rapidly, and many of them now provide a six-year course which leads to secondary education: a number, however, stop short after four years—the Lower Primary Course—though the situation should be rectified when a sufficient number of teachers emerge from training: all Higher Primary Grade teachers, including Chinese, are required to serve in rural areas for their first two years out of college. The total enrolment in local authority schools in 1964 was 51,963, of whom more than 1,500 were boarding in hostels aided by a government subsidy. English is the medium of instruction, but this depends largely on the ability of the teacher to speak it, and in lower primary classes considerable use is made of the vernacular. The number of children from these schools proceeding to secondary schools rose from 408 in 1960 to 832 in 1962.

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[1] See also Hunter.

There are two well developed school systems available to the Chinese: committee schools (224 in 1964 with an enrolment of 37,536) teaching in Mandarin, and mission schools (141 with an enrolment of 19,967) teaching in English.

The total primary enrolment in 1964 was 111,835, roughly 14 per cent of total population estimated at 818,000, or 65 per cent of the population of primary school age: figures of enrolment by race (not available at the time of writing after September 1963) were, in a total enrolment of 99,691: 52,637 Chinese, 31,072 indigenous, 15,330 Malay, and 652 others.

Secondary education

An attempt is made to provide secondary education for 30 per cent of primary schools, the low standard of English in most of them making it difficult for government or aided secondary schools. Private secondary schools in a few urban areas cater for pupils who failed to gain admission to government or aided schools and who can afford the comparatively high fees.

In the case of primary schools a common code of grant-in-aid puts all schools on the same financial basis and in the same relationship with government.

Difficulties arose, however, in view of the use of Mandarin by committee schools, the low standard of English in most of them making it difficult for their pupils, not only to obtain employment in the public service or further education overseas, but even to communicate with their fellow citizens of the other races. Accordingly, in 1961, the managements of sixteen Chinese-medium aided secondary schools were asked to convert gradually to English as a medium of instruction. Eleven managements agreed. Five did not convert and lost aid, but one is to be replaced by an English-medium school. On the other hand, eight unaided English-medium secondary schools were established by Chinese committees in 1962 alone, showing that the majority of Chinese appreciate the value of English in the linguistic circumstances of Sarawak.

A further step in the unification of the school system has been the preparation of a unified curriculum and syllabuses for all junior secondary schools, a task undertaken by three New Zealand teachers, one of many evidences of the assistance given by New Zealand to Sarawak in general and to education in particular.

In 1964 there were thirty-nine government and aided secondary schools, with an enrolment of 11,216, and thirty-eight private schools with an enrolment of 10,761, giving a total secondary enrolment of 21,977. Enrolments by race in 1963, again the last year for which this information is available, were 11,877 Chinese, 1,381 indigenous, 1,328 Malay and 652 others.

English-medium schools prepare pupils for the Sarawak Junior Certificate (form III) and the Cambridge Overseas School Certificate (form V); a few schools with sixth forms prepare candidates for the Higher School Certificate examination. Chinese schools have their own Junior and Senior Middle examinations. Passes in the various examinations in 1962 and 1964 were:

	1962	*1964*
Junior Certificate (English)	1 022	1 762
Junior Middle Certificate (Chinese)	383	...
Cambridge Overseas School Certificate	274[1]	531
Chinese Senior Middle Certificate	194	...
Cambridge Higher School Certificate	43	65

Thus between them Sarawak and Sabah are, allowing for the different years quoted, producing some hundred candidates a year who are now qualified for third-level education.

Technical education

In-service training is given to entrants, if possible with a School Certificate, by the Public Works Department, but the only Technical School is in Kuching, in new premises first occupied in April 1964. The school teaches carpentry, joinery and metal work to City and Guilds standards, and it is hoped to add courses in electrical installation and automobile maintenance. The first entry was of 80, with a Junior Certificate qualification, in a two-year course. The Trade School also provides in-service courses to technicians from various government departments.

Two other minor institutes are a Nautical School with two instructors which provides training for the crews of vessels, and a Commercial Institute with the modest intake of 15 stenographers and 40 typists a year.

As in Sabah, the need for a technical college is abundantly clear.

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[1] Plus 3 private candidates.

Teacher training

In 1948 there were 4,478 teachers of whom 1,618 were trained. There are two training colleges, at Batu Lintang and Sibu, and a third is being developed, with New Zealand assistance, at Binatang. Batu Lintang uses English as the medium of instruction, training teachers for all types of work except general subjects in Chinese schools. The Sarawak Teachers' Training College at Sibu trains these teachers, and a special group capable of using English as the medium in the junior forms of Chinese middle secondary schools converting to English.[1] In-service training courses are held on a large scale, principally concerned either with the new junior secondary curriculum, or with methods in the lower primary schools. There is, of course, no adequate preparation for teachers in the upper forms of secondary schools: reliance has to be placed on expatriate staff and training overseas.

When the new college at Binatang is opened and in production it should be possible to produce from all sources an additional 1,000 teachers between 1962 and 1969.

It would be inappropriate to conclude this brief note on teacher training without some reference to the Schools Broadcasting Service, which commenced in 1958, in an attempt to assist with the teaching of English in rural areas. The service expanded rapidly, and programmes, complete with lesson notes, have been presented in English on health, geography, history and singing. A series of programmes in Iban and Malay were also designed for lower primary classes, and new programmes are now being directed to transition classes and the junior forms of secondary schools. Again New Zealand has contributed to development in Sarawak by providing, in sequence, two school broadcasting officers.

The basic aims of the State Government, outlined in a Development Plan 1964/68[2] 'to be absorbed in the first Malaysian Development Plan, 1966/70 with such revisions as may then seem desirable' are:

The provision of a primary place for every child of school age (29,000 places including the 2,000 in the 1963 programme).

Better facilities for boarders and an additional 5,000 places.

The reduction of wastage, at present about 50 per cent from primary 1 to primary 6. It is hoped to reduce this factor to 20 per cent, largely by the provision of more higher primary classes.

The expansion of secondary education by 4,500 places—twenty new schools, together with the improvement of laboratories and workshops. It is particularly desired to expand junior secondary into senior secondary and sixth-form level schools.

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1. Pupils changing from a Chinese primary school to an English secondary school proceed through 'transition classes' as in Sabah.
2. *Development Plan 1964/1968* (Kuching, Government Printing Office, 1963).

The provision of a third teachers' training college (already noted in the text of this section).

The necessity for additional secondary teachers is established, but no new proposals for filling the need are made.

An expenditure of $703,000, half to develop the Kuching Technical Centre, half for various unspecified institutions elsewhere. The plan does not get to grips with the great problem of developing technical education.

Other schemes cover library development, the extension of broadcasting to secondary schools, and grants and loans to managers of primary aided schools.

HIGHER EDUCATION IN SABAH AND SARAWAK

Since no facilities are locally available both Sabah and Sarawak have had to rely upon overseas training through scholarships provided by the respective governments, the Colombo Plan governments and other agencies.

On 1 January 1964 there were 213 students from Sabah holding overseas scholarships, of whom 95 were in Australia, 59 in New Zealand, 19 in Hong Kong, 14 in Malaya, 10 in Canada, 5 in the United Kingdom, 5 in Singapore, 3 in India, 1 in Ceylon, and 2—an apparent anomaly—in Sarawak: these were laboratory technicians training in the admirable Medical Department of Sarawak.[1]

The debt owed to Australia and New Zealand is clearly indicated: it seems strange however that between them Malaya and Singapore were only receiving 19 students, the same number as Hong Kong (with which Sabah has, through its Chinese population, strong links).

The largest field for scholarships is teacher training (49), not quite 25 per cent of the whole: next come students reading for an arts degree (29).

In the fields of technology and technical education may be found agriculture, veterinary science and forestry (21), civil engineering (13), electronics engineering (2), electrical engineering (8), mechanical engineering (15), geology (4), surveying (7), and telecommunications (3). In the medical field there were 11 scholarship holders in medicine, 12 in dentistry and 2 in pharmacy. The remainder range from meat inspection to architecture.

By the end of the year the total number had risen to 277, of whom 189 were on Colombo Plan scholarships.

The latest over-all figure of students overseas from Sarawak is stated by the Federal Ministry of Education[2] to have reached in 1964 the astonishing total of 733 (sponsored 288 and private 445). The most recent available

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[1] The notes on education in Sabah and Sarawak do not include references to training schemes, largely departmental, which have a purely vocational content. They are described in the appropriate sections of Hunter.

[2] Official Year Book—Education, 1964 (draft).

analysis of these figures, however, is to be found in the *Education Summary for 1962.*[1] Here are listed 246 sponsored students in the following categories:
Degree courses: 96, including education (31) and medicine and health (24);
Diploma courses: 45, including engineering (18);
Certificate courses: 31, including medicine and health (18);
Practical training: 74, agriculture, administration and police, etc.

The technical fields are not well represented:

	Degree	*Diploma*	*Certificate*	*Practical*	*Total*
Agriculture, veterinary and forests	9	7	2	14	32
Engineering	9	18	1	8	36
Surveying	4	—	2	4	10
Geology	1	—	—	—	1

Of the total of 246 only 27 were studying in Malaya and 30 in Singapore.

Private students in the United Kingdom numbered 71, of whom 26, were taking courses in nursing, 13 in law, 8 in accountancy, 7 in engineering and 6 in medicine; it was not possible to trace the others.

The whole complex problem of higher education in the Borneo territories has been considered at some length in the main report of this study (Volume I, Chapter 5) and the relevant passage is reproduced here:

'The over-all problem of the expansion of educational facilities to meet manpower needs is one that must be shared with Sabah, which with Sarawak may be conveniently termed Eastern Malaysia. Ultimately a college of university standing will be required to serve the two States; but the joint output of candidates with Higher School Certificates (the entrance requirements of the universities at Singapore and Kuala Lumpur) was 78 in 1962: it will have to rise to 500 to support a college. Meanwhile, hard put as the universities of Malaya and Singapore are to meet their own needs, they must also help to fill the graduate requirements of Sabah and Sarawak.

'As at least interim measures, both to develop training facilities and to prepare for the ultimate establishment of a university college, it would be desirable to set up the following joint institutions: (a) an agricultural college[2] with the most advanced courses reaching diploma standard (grade 13 to 14); (b) a school of forestry;[2] (c) a technical college, also with courses rising to diploma level; (d) a school of education to train teachers for the upper forms of secondary schools.

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[1] Kuching, Government Printer, 1963.

[2] In planning for the institutions which will ultimately develop into the University of Eastern Malaysia, Hunter notes, in his section on Sabah, that the Agricultural Training School site at Tuaran, Sabah, would lend itself well to the development of a diploma-level college, and that the teachers' training colleges in Sarawak could be expanded into a school of education. The dangers of fragmentation and the attractions of an efficient and economic amalgamation of training facilities present the planner with a dilemma. Whatever the better administrative and professional solution, it is not likely that the views of the peoples of Sabah and Sarawak will be easily reconciled, in one State or the other, to forgoing the acquisition of at least some aspect of higher education in the cause of efficiency and economy.

'Concerning these proposed foundations, Hunter adds: "It may well be desirable that they should become institutes giving a diploma which is recognized or indeed given by a parent university. After a few years they would easily move on to become faculties of a university college of Eastern Malaysia. It has also been suggested that a 'junior college' of arts and science might well find a place on the island, to grow up, in its turn, and join the institutes in forming such a (*university*) college. While there is ample precedent for linking special institutes to a university—for example, in East Africa—the 'junior college' proposal requires careful thought. It would have to give at least as good a qualification as the present sixth forms for purposes of university entry; and it might be unfortunate (and expensive) to destroy present sixth-form work in order to feed a new institution simply for the prestige of the name 'college'.[1]

'A further, and perhaps even more immediate need, is an institution and scheme for the training of indigenous personnel in central and district administration, for which a local staff training college for Eastern Malaysia might well be established. Hunter suggests a two-year course after at least a good School Certificate result, to be followed by a year's practical training, some of it abroad, possibly in Kuala Lumpur or Singapore. Whilst for prestige reasons a diploma award might be necessary, the training to be given should be highly practical rather than academic.[2]"

HIGHER EDUCATION IN MALAYA

Higher education in Malaya (and therefore Malaysia) is to be seen in terms of individual institutions: a stage offering a broader perspective has not yet been reached.

THE UNIVERSITY OF MALAYA

The University of Malaya, as has been recounted in the profile of Singapore (pp. 433-43) originated in 1949 with the amalgamation of two institutions,

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1. It may also be argued, however, that the prestige of the sixth form is an importation from the West in general and Dr. Arnold's Rugby in particular, which may well afford an example of that type of educational tradition which, excellent in its original context, may not altogether meet the needs of the society into which it has been transplanted. British headmasters are prepared to defend their sixth forms to the last prefect against the junior college concept, but when qualified staff are rare and well equipped laboratories are rarer, such a concept cannot be lightly disregarded. See also Volume I, Chapter 9.
2. Such a college might well be affiliated to the proposed university college when it is established, but should probably not form a constituent part: it needs the support of a university staff and facilities, but a wider freedom than could be reasonably afforded by full academic control.

Raffles College (of Liberal Arts) and the King Edward VII College of Medicine.

Courses in arts and education were extended from Singapore to Kuala Lumpur, perhaps somewhat hastily, ten years later, in 1957/58, and this led to the formal establishment of the Kuala Lumpur Division of the University of Malaya in 1959. In 1961, by the University of Malaya Act, this division became the National University of the Federation of Malaya, the other (and original) division becoming the University of Singapore.

The University of Malaya is still in process of development on the slopes of a gentle valley on the outskirts of the federal capital. The grey concrete buildings housing the various faculties, teaching hospital, halls of residence, great hall, library, sudents' union and the administrative offices, are varied in design and agreeably disposed among the wooded slopes, lawns and shrubberies of a site which offers many vistas of the distant mountain ranges. The contrast between the Educational Functional of the campus, and the Public Works Mauresque of the city[1] is entertaining, though neither can actually be said to present any sort of national image of Malaya.

The titular head of the university, an office at present held by the Prime Minister, is the chancellor, who when present presides at meetings of the University Court and Council, and such convocations as may be held. The principal executive and academic officer is the vice-chancellor, the other officers being the deans of faculties and the registrar, the bursar and the librarian, who have no faculty allegiance. The governing body of the university is the Court, an assembly which includes the whole of the Council and the Senate (q.v.), and a wide variety of representatives including nominees of the Paramount Head, the Rulers or Governors of each State, the Sultan of Brunei, the Guild of Graduates, and the Federal and State Legislatures and local authorities, ten representatives of learned bodies, seven representatives of training colleges nominated by the Minister of Education, seven persons representing the hospitals, and not more than another thirty 'representatives of professional, commercial, industrial, cultural and other organizations in Malaya'. Quite clearly this is a purely formal body, not likely to meet more than once a year to hear the vice-chancellor's annual report and a financial statement, nevertheless it is interesting to note that neither the Minister of Education nor his senior officers are *ex-officio* members of the Court, nor indeed, as will be seen, of the Council.[2]

The executive body of the university is the Council, which consists of the vice-chancellor, four elected representatives of the Court, two deans of faculties, two representatives of the Senate who are not deans, one representative of the faculties other than professors (who are all members of the Senate), five representatives of the Supreme Head, two of the Conference of Rulers, four representatives of the chancellor, one of the Borneo States including Brunei[1] and five representatives of the Guild of Graduates. The final loading of the Court seems to be six members of the university and seventeen laymen, of whom it may be presumed that the members of the Guild of Graduates will have strong academic leanings.[2] The composition of university courts is always a matter of reaching a stage of near equilibrium between academic and lay points of view. Here the issue seems to be very finely poised, but with a perceptible inclination to the non-professional side.

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[1] Relieved by one most unexpected touch of half-timbered Elizabethan in the Selangor Club facing the Padang.

[2] The Permanent Secretary of the Ministry of Education is, at the moment, a member of the Council, but not *ex officio*.

The Council may exercise all the powers of the university save those specifically reserved to another body by the constitution, statutes or acts of the university (q.v.), and it has twelve standing committees, including committees on finance, development and academic staff.

The academic affairs of the university are in the hands of the Senate, which controls instruction, research, examinations and the award of diplomas and degrees. Its members are the vice-chancellor and the professors of the university, together with the dean and deputy deans of faculties, the heads of institutions,[3] the librarian, and three persons elected by the teaching body among those not otherwise eligible for membership. The Senate is authorized to transmit to the Council its views on any matter under consideration by the Council which is related to the powers of the Senate.

Within these bodies the internal government of the university is regulated by statutes and acts which are made by the Council: the former cover major questions such as the powers and duties of boards (q.v.), the methods of appointment and terms of service of lecturers and the management of the library: the latter are concerned more with the day-to-day life of the university—the number and scope of examinations, the remuneration of examiners or the appointment of non-academic staff. Where the substance of the matter of an act concerns matters within the province of the Senate the act is drafted by that body and then approved or referred back by the Council: in all such cases the concurrence of the Senate is a *sine qua non* of the making of the act.

The internal organization of the university is based upon faculties, that is, groups of departments in related fields, and consists of the vice-chancellor,

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1. With the cautious reservation 'so long as the government makes a grant-in-aid'.
2. For example, in 1963 the Guild of Graduates forwarded a resolution to the Council recommending, in view of the resignation of the vice-chancellor of the University of Singapore, that 'the Council should seek an assurance from the government that it will not interfere with the autonomy and academic freedom of the universities of our country'. The Council approached the Minister of Education who gave the required assurance, with the proviso that this did not exempt them from the operation of the law of the land!
3. For example, the School of Education before it became a faculty.

who is a member of every faculty, an elected dean, or chairman, the professors of the permanent staff, heads of departments, and senior lecturers or lecturers, elected in such numbers that they do not amount to more than one-third of the total number of the faculty. Boards of studies deal with matters affecting more than one faculty, or recommendations that another faculty should be created; for example, in the academic year 1965/66 the School of Education, an institute, was raised to the status of a faculty. There are boards conducting examinations—thirty-four of them; Boards of Agriculture, Engineering and Education; a Board of Student Welfare; a Board of Directors of the University of Malaya Press Ltd.; and committees on honorary awards, the library, publications, and academic affairs.

The faculties

There were, in 1965/66, six faculties—a seventh, economics and administration, will be established in 1966/67: two more faculties ultimately projected are dentistry and architecture. The present faculties are: Arts, Science, Engineering, Agriculture, Medicine, and Education.

The Faculty of Arts. Courses of study available in this faculty are: Chinese studies, history, economics, Indian studies, English, Islamic studies, Geography, linguistics, geology (for geographers), Malay studies, pure mathematics, applied mathematics. The course is one of three years, and successful candidates are awarded either honours degrees in Class I, Class II (upper or lower), or a pass degree. The courses of study have been reorganized on a unit basis, normally one-unit courses of from 35 to 50 class hours including tutorials or seminars. During the first year a student must take a total of twelve units chosen from at least three main subjects, at the same time taking at least the minimum number of subjects required by each of the three departments for entry into its second year two-subject[1] courses. Thus a student who is going to specialize solely in economics will select four subjects in that field during his first year, but a student intending later to specialize in geography and history will probably take only three courses in economics. For the second and third years a student must take eight units in each year, the combination depending upon whether he intends to specialize in one field, say Chinese studies, or history and Islamic studies. The general aim of the system is clear, a more general approach being required before specialization is entered upon in one or two main fields, and the system of unit courses enables a plan of studies to be fitted to the abilities and inclinations, within proper academic limits, of individual students, whose general course is carefully charted by the markers of each unit course. It is, however, difficult to believe that the young second-year student does not feel some sense of

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[1] That is, for students now specializing in two fields.

TABLE 22. Subject fields of students in the Faculty of Arts, 1965/66

Course	First year	Second year		Final year		Total
		Two-subject course	One-subject course	Two-subject course	One-subject course	
Chinese studies	119	23	4	21	1	168
Economics	370	44	53	36	37	540
English	88	17	24	15	19	163
Geography	258	30	77	30	63	458
Geology	24	—	—	—	—	24
History	283	85	53	56	51	528
Indian studies	144	26	3	22	1	196
Islamic studies	121	5	5	25	5	161
Linguistics	—	—	—	18	—	18
Malay studies	256	36	58	40	41	431
Malay language	257	—	—	—	—	257
Applied mathematics	10	—	—	—	—	10
Pure mathematics	17	2	—	3	—	22
Mathematics	—	—	6	—	3	9

intimidation when, for example, contemplating furthering his Chinese studies, to learn that if he is an 'A'-stream candidate—i.e., with a credit in Chinese in the School Certificate examination[1]—if he is taking Chinese as *one subject* he: '. . . will take a total of eight units, at least two units from courses A230, A231, A331 and A337, together with course A206 and at least three other courses from those listed above[2] except courses A210, A212, A220, A221, A222 and A121. The remaining two units may be taken from the following courses in Part I and II of the Faculty List, but not more than one language course from Part II: Part I—B211, B240, B250, C208, D206, D207, D208, E210, E220, E235, F209, F210, G225, G230; Part II—D201, D204, F206, F207, H250, Z200, Z202, Z204, Z206, Z208.' Successful selection of the optimum course should surely count heavily toward the award of a degree!

In 1965/66 there were 1,424 undergraduate students in the Arts Faculty, together with 72 graduates reading for further degrees: Table 22 shows their distribution by subject.

In the first year, with a wide spread of subjects, the most popular courses are clearly those in economics (a utility subject for historians and geographers, reputedly a desirable qualification for the public service, and presided over by a Malay professor of distinction). Economics are followed at a respectful distance by history and geography and, for obvious reasons, Malay studies and Malay language (a first-year course only). With increased specialization, and internal guidance and selection, the distribution attains equilibrium with geography, history, Malay studies and economics, all catering for approximately the same number of one-subject students. Economics and history remain the largest departments.

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[1] 'C'-stream candidates for example are normally of non-Chinese origin and do not possess any prior knowledge of Chinese.

[2] A list of twenty-four courses ranging from an introduction to Chinese painting to elementary Japanese I.

The Faculty of Agriculture. The course extends over four years, the first year being taken in the Faculty of Science, with students reading chemistry, zoology and botany with one additional subject. The award of honours is based upon over-all performance in the last three years of the course. All students are required to complete not less than forty weeks of approved practical fieldwork, normally during long vacations.

The faculty also offers, intermittently, a one-year full-time Diploma in Animal Science, which requires previous training in veterinary science, a diploma from Serdang (Malaya) or other recognized agricultural colleges, or a university degree in agriculture.

In 1965/66 there were 154 students in the faculty, 11 of them reading for a further degree. Eight of the students were women. It is also significant that 102 students were Chinese, and only 34 Malay, though of the 47 first-year students 21 were Malay, a better proportion. Nevertheless, this is a most inadequate output for a country which has based its future economic policy on the development of rural areas. The faculty itself is making every endeavour to orient its teaching in the direction of rural science.

The Faculty of Engineering. Engineering is a four-year course, the first two years of which cover a general range of subjects and include a course of instruction in workshop practice held in an engineering establishment during the long vacation. In the last two years, students specialize in civil, mechanical or electrical engineering. In the third year, a practical course of five months in an approved engineering establishment is required, and in the fourth year, a thesis with original work or a design has to be submitted. The university degree is recognized by the four professional engineering institutions of the United Kingdom. The faculty also offers a one-year undergraduate diploma course in photogrammetry.

In 1965/66 there were 281 students in the faculty, of whom three, all in the first year, were Malays. Two hundred and fifty were Chinese.

The Faculty of Science. The Faculty of Science offers a three-year course for a pass degree, after which suitable students are accepted for a fourth year to work for an honours degree.

There are Departments of Botany, Chemistry, Geology, Mathematics,

TABLE 23. Courses taken by students in the Faculty of Science, 1965/66

Course	First year	Second year	Third year	Honours	Total	Agriculture (first year)	Medicine (pre-medical)
Biochemistry	—	32	—	—	32	—	—
Botany	71	58	31	9	169	47	42
Chemistry	166	126	44	22	358	47	42
Economics	12	—	—	—	12	—	—
Geology	68	14	12	5	99	45	—
Applied mathematics	95	58	15	—	168	—	—
Pure mathematics	113	81	25	—	219	—	—
Mathematics	—	35	31	11	77	—	—
Meteorology	—	—	—	3	3	—	—
Physics	135	85	23	9	252	2	42
Zoology	68	48	29	10	155	47	42

Physics and Zoology, candidates being required to read four subjects in the first year, three in the second year, and two in the third and one in the final year: there are certain restrictions as to combinations of subjects in the second and third years, and the pattern of studies is undergoing examination.

The faculty includes a considerable amount of 'service teaching' for other departments: first-year agricultural and medical students, a course in geology for civil engineers, and mathematics for arts students.

The *Handbook for Students* includes the following attractive note on fieldwork from the Department of Zoology: 'Zoologists in Malaya are fortunate in being close to an abundant variety of ecological situations such as tropical rain forest, mountain and lowland fresh waters, various littoral and marine habitats such as coral reefs and mangrove swamps, and many others. The Zoology Department has an increasing stock of field equipment and apparatus; vehicles are available for transport of students and gear, and there is a small laboratory at Kuala Tahan in the King George V National Park, Pahang.'

In 1965/66 the faculty numbered 568 students including 69 reading for honours, and 33 for further degrees; in addition 42 medical and 47 agricultural students were receiving their first-year training in the faculty. Only 28 of the 568 students were Malays: 472 were Chinese. The most likely explanation of the extremely low proportion of Malays to be found in science and engineering is that the opportunities for gaining the credits in the Higher School Certificate in mathematics and science subjects can be acquired only at the large urban schools, which are not frequented by Malays, who by and large live in the rural areas. It is a more attractive explanation than the usual one of an innate antipathy to the régime of intensive study required by these disciplines. But it cannot be applied to the similar situation in agriculture. Table 23 shows the distribution of students over the various subjects.

The Faculty of Medicine. Students were first admitted to the faculty in the academic year 1964/65, and the building of the Medical Centre has been phased so as to provide the necessary facilities slightly in advance of the developing degree course.

The Medical Centre, planned after a wide-ranging study of recent medical schools and a review of current trends in medical education, is able to bear comparison with the highest international standards. It is situated on a slope at the head of the valley housing the university campus, and its lay-out reflects the student's progress from the basic medical sciences to clinical work in obstetrics. The axis of the complex of buildings is a corridor linking the administrative block with the teaching hospital: from this spine, as it were marking stages in this progress, there branch out on the one side multidisciplinary laboratories, lecture halls, a library and a museum; on the other, research laboratories and staff offices.

The teaching hospital consists of a three-floor base and a twelve-floor T-shaped tower, with wards in the bar of the T and lifts and teaching accommodation in the stem. When completed this massive structure will accommodate 756 beds, and will be able to deal with a maximum of 500 out-patients daily.

In close relationship with the hospital a nurses' training school and hostel are being built, and a residential college is to provide accommodation for 256 clinical students and six research associates. (Housemen will be accommodated on the top floor of the tower block.)

The maximum number of admissions to the first year of the course will rise to 126, and it will last for six years, one pre-medical year in the Faculty of Science, and five at the Medical Centre. The pre-medical course will serve more than an ancillary teaching function: it will introduce medical students to the general life of the campus; otherwise the centre, though located within the campus boundary seems, both by the configuration of the ground and the available services, to be very much an *imperium in imperio.*

The course has been described in a brochure published by the university to mark the opening of the centre:

'During the first academic year he will study anatomy, histology, physiology and biochemistry. In addition, he will be introduced to the broad field of preventive medicine and will attend courses in statistics and sociology. In order that the facts he acquires in his basic science courses are not learnt in isolation but are applied to living individuals, he will attend "correlation clinics" in which patients will be presented and their symptoms and physical findings discussed with emphasis on their anatomical, physiological and

TABLE 24. University of Malaya: student statistics, 1961/62 and 1965/66[1]

	1961/62		1965/66	
	Number	Percentage	Number	Percentage
Total student enrolment	1 010		2 835	
Faculty enrolment and percentage of total:				
Agriculture	53	5.3	154	5.4
Arts	556	55.0	1 496	52.8
Engineering	198	19.6	281	9.9
Science	203	20.1	568	20.0
Medicine	—		186	6.6
Education	—		150	5.3
Enrolment by areas:				
Malaya	933	92.4	2 703	95.3
Singapore	72	7.1	92	3.3
Borneo territories	1	0.1	29	1.0
Others	4	0.4	11	0.4
Enrolment by race:				
Chinese	585	57.9	1 669	58.9
Malays	217	21.5	721	25.4
Indians and Ceylonese	182	18.0	395	13.9
Others	26	2.6	50	1.8

[1] The study is greatly indebted to the registrar of the university for providing the great bulk of the statistical material in this section of the study. The annual reports of the university, following the excellent precedent set and still maintained by the University of Singapore, contain a very full body of statistical material.

biochemical aspects. When he has gained a thorough understanding of the normal, he will then be able to pass on to the second year studies of abnormal structure and function which occur in disease. The main courses in this year are pathology, bacteriology, parasitology and pharmacology. This basic training will prepare him for the three "clinical years" during which he will be able to apply the knowledge of the basic sciences to the patient. He will be given increasing responsibility for patients, and will develop competence in the skills and techniques of medical practice. Clinical clerkships in medicine and surgery will be followed by rotating clerkships in other subjects so that in the fifth or final year he will work whole-time in the hospital as an "apprentice doctor".'

By the time the second year of the course had been organized there were 42 students, 37 men and 5 women, in the pre-medical year; 80 in the first year (students with a pass in the general paper and passes at the principal (2) and subsidiary (2) level in the appropriate sciences in the Higher Certificate

TABLE 25. Percentage distribution of students in courses of study by race, 1965/66

Course	Chinese	Malays	Indians and Ceylonese	Others
Agriculture	66.2	22.1	10.4	1.3
Arts	41.4	40.5	15.9	2.2
Engineering	89.0	1.1	9.2	0.7
Science	83.1	4.9	10.6	1.4
Medicine	78.5	12.4	8.6	0.5
Education	52.7	18.0	26.0	3.3

examination are excused the pre-medical year); and 63 in the second year. One post-graduate student is reading for an M.D. degree (the first degree is M.B., B.S.). Of the 186 students thus accounted for, 146 are Chinese, 23 Malays, 16 Indian or Ceylonese. (One is unclassified.)

The Faculty of Education. It seemed more appropriate to describe this faculty when dealing earlier with the training and education of teachers (see above, pp. 344-6).

A general picture of the present scope of the university may have been gathered from this brief survey of the faculties: however, a concise comparative survey of over-all figures for the year of foundation, 1961/62, and the last year for which figures are available, 1965/66, is shown in Table 24.

It is clear that the major change in this first short period of the new university's life is to be found in the element of growth: enrolment, as might be expected, has nearly trebled.

The present allocation of students between faculties shows just over half reading arts, 20 per cent reading science, and the rest spread over agriculture, engineering, medicine and education. Education and Medicine are, of course, new faculties. Education may expand to an intake of 200 students, either for a one-year course or the B.Ed. course, at present arranged on a part-time basis for two years, in 1966/67, while the Medical Faculty will ultimately expand to take in an annual entry of 126. Possibly the least satisfactory aspect of the distribution is the low proportion of students reading agriculture in a country where development is based predominantly on an increased use of land and natural resources.

While the vast majority of students come from within Malaya, Malays, despite the incentive of special scholarship awards given by State governments, number only one-quarter of the total enrolment, though the percentage figure has grown slightly during the period under review. Table 25 shows the distribution of students by race in all faculties. It is not possible to

TABLE 26. Distribution of students receiving scholarships by race and faculty, 1963/64

Faculty	Malays	Chinese	Indian	Others	Total
Arts	107	28	11	3	149
Science	4	8	—	1	13
Engineering	5	1	—	1	7
Agriculture	4	2	—	—	6
Medicine	—	16	—	—	16
TOTAL	120	55	11	5	191

distinguish students from the Borneo territories in this context; though it is most encouraging to see in Table 24 that their number has increased from 1 to 29, this only includes 3 of the indigenous people.

The Chinese are in a majority in all faculties, overwhelmingly so in Engineering, Science and Medicine, and in view of the fact that Malays are in a minority in all faculties, representing less than one-quarter of the enrolment in all save Arts, where they number 40 per cent, it would seem that the introduction of the national language as the sole official medium of instruction should be viewed with extreme caution. Quite apart from this question, which is a matter of politics, not of education, it is disquieting to translate the Malay percentages into figures, as was done in the notes on faculties, and realize that there are only 34 Malays reading agriculture, including one reading for a master's degree, only 3 in the Faculty of Engineering, 28 reading science, 23 medicine, and 27 students who have already graduated reading education. The annual output of Malay students reading for a first degree is less than 10 in any faculty save Arts, in which are to be found 606 of the total number of Malay students. It is difficult to believe that courses in history, geography, economics or Islamic studies are the only background needed to provide the high-level manpower either for administering, or what is surely more important, for undertaking the direction, of the future of a new nation with great potentialities but facing a more than usually large share of the problems besetting all newly emergent countries.

A different type of uneven distribution may be noted in the home State of the Malayan students of all races. Of 2,703 Malayan students, three States—Perlis, Kelantan and Trengganu—between them contribute only 159. Perlis, by far the smallest State, is situated at the north-western extremity of the peninsula, and the other two are the most distant States in the north-east. Nevertheless between them they contain 13.93 per cent of the population of Malaya, but their combined secondary-school enrolments in 1962 represented only 7.7 per cent of the total secondary-school enrolment, and their university students only 5.8 per cent of the total student body. A review of these figures

TABLE 27. Distribution of first-year students by race and occupation of parents, 1963/64

Occupation	Malay	Chinese	Indian	Others	Total
Professional	31	60	33	4	128
Administration	5	20	4	2	31
Clerical	11	59	9	2	81
Sales	11	131	16	0	158
Farming	22	12	3	0	37
Mining	0	7	0	1	8
Transport	6	4	4	0	14
Industry	3	20	3	0	26
Science	37	29	18	1	85
Unknown	7	17	9	1	34
Non-economic activity	25	41	24	3	93
TOTAL	158	400	123	14	695

after the Malaysian plan has had time to stimulate secondary education and influence university recruitment—an interval of at least ten years to allow for building programmes and staff training—should show this imbalance being redressed.

More than half the students, whose ages on entry range between 20 and 26, come from towns with a population of over 50,000; the proportion is even higher in the case of Chinese and Indian students, whereas the proportion of Malays living in such towns is small.

Table 26 shows the distribution of students in receipt of scholarships or grants to attend the university.

Although only about 60 per cent of the students joined the Arts Faculty nearly 80 per cent of the scholarships were given in it, some two-thirds of them going to Malays, most of whom are to be found in the Arts Faculty.

The occupation of the student's parent or guardian is shown in Table 27. The categories are those of the international standard classifications, and give some idea of social background: however, 'sales occupations', for example, the largest occupational group, particularly for Chinese students, ranges from the wholesale trader to the street vendor. The next largest group is that of the professional workers, consisting mainly of teachers, most of whose children are to be found in the Arts Faculty: there is a proportionately high representation of Indians in this group. Many parents were reported on application forms, from which this data has been compiled, to be economically inactive: they would appear to be retired professional or government workers. The parents of Malay students are mostly professional or service industry workers, as are those of Indians.

TABLE 28. University of Malaya: first degrees awarded by faculty, 1961/62 to 1964/65

Faculty and year of award	Original enrolment in first year of course	Number of first degrees awarded	Percentage of original enrolment	Number of failed candidates
Arts				
1961/62	163	98	60.1	3
1962/63	206	166	80.6	7
1963/64	257	189	73.5	16
1964/65	313	246	78.6	16
Science				
1961/62	31	21	67.7	7
1962/63	68	46	67.6	—
1963/64	95	62	65.2	—
1964/65	112	95	84.8	—
Engineering				
1961/62	30	17	56.6	—
1962/63	54	26	48.1	1
1963/64	66	31	47.0	3
1964/65	82	51	62.2	—
Agriculture				
1962/63	8	7	87.5	—
1963/64	19	15	78.9	—
1964/65	25	21	84.0	—
Education				
1963/64	35	30	85.7	—
1964/65	88	72	81.8	6

The government, under defence regulations, at present requires that all students admitted to the university, or rejoining it after a year's absence, should be in possession of a 'Certificate of Suitability' to be obtained from the State Education Office. This requirement, based upon the political situation, finds no place in university legislation: it has been imposed upon the university as upon the students.

It is scarcely reasonable to attempt to assess the productivity of the university when it is still a young and developing institution: however, Table 28 shows the output of graduates obtaining a first degree since 1962.

It is only in the non-school subject of engineering that the number of graduates sometimes falls a little short of half the number of the original entry. Wastage, in view of the very few examination failures, must be almost entirely attributable to drop-out, though to what degree this is due to economic and personal causes, as opposed to academic difficulties, cannot be shown: its incidence is certainly heaviest after the first year. In view of the higher standard required for entry it is probably the former.[1] The full output of first degrees since the university was established (1961) is:

Arts	*Science*	*Engineering*	*Agriculture*	*Total*
699	224	125	43	1 091

In addition, the following awards have also been made to graduates: 91 honours degrees in science, and 102 diplomas in education.

Staffing

The university staff, which includes a number of senior members of the original university at Singapore, is an international body widely recruited. Emoluments include (31 March 1966):

Basic salary. Professors: in a scale ranging between $1,770 and $2,130 per month; readers and senior lecturers: $1,350×50—$1,650 per month; lecturers: $920×40—$1,160/1,200×45—$1,425 per month; assistant lecturers: $800×40—$880 per month. Slightly higher scales are available for staff with medical or dental qualifications.

A variable allowance covering cost of living, and ranging between $150 and $400 per month according to the number of dependents.

An inducement allowance, based on individual cases, clearly replacing such devices as 'expatriation allowances', but not tied to any particular circumstances, ranging from a maximum of $12,000 a year for professors to a maximum of $2,400 for junior staff.

There are also numerous fringe benefits such as a staff provident fund, medical benefits (including the family), heavily subsidized housing of high quality, and passage allowances.

The distribution and levels of staff by faculty are shown in Table 29; student/teacher ratios are set out in the following section.

Finances of the university[2]

The University of Malaya presents the Central Government with two sets of estimates, one relating to recurrent income and expenditure, the other to capital expenditure.

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[1] This view is reinforced by the fact that a system of 'referred' examination results permits students to re-sit in the same year examinations in which they have failed.

[2] This section is a reprint, slightly abridged, of a note contributed by Dr. Lim Chong Yah, of the Faculty of Economics of the university, as part of an appendix on the financing of higher education in Volume I of the study.

TABLE 29. University of Malaya: composition of the teaching staff by faculty, 1965/66

Faculty	Professor	Visiting professor/ lecturer	Senior lecturer	Lecturer	Assistant lecturer	Tutor	Faculty enrolment
Agriculture	1	1	—	9	3	5	154
Arts	8	8	8	42	15	22	1 496
Engineering	1	2	2	15		1	281
Science	6	—	4	35	8	3	568
Medicine	6	5	1	15	4	—	186
Education	1	—	—	10	3	—	150

Recurrent income and expenditure.

Total recurrent expenditure. The total recurrent expenditure of the new university has increased in spectacular fashion; in 1959, it was about $1.6 million,[1] in 1962 about $5.5 million and the estimated expenditure for 1965 is approximately $13.8 million. This increase has, of course, been the result of an equally spectacular expansion in student numbers, which rose from 323 in 1959 to 2,835 in 1965. Indeed, over the period 1959/65 the average rate of student increase has exceeded the corresponding rate of growth of expenditure, resulting in a fall in average cost per student and a rise in student/staff ratio. Statistics on the growth of the university's student and

TABLE 30. Growth of the University of Malaya: students, staff, recurrent expenditure, student/staff ratio, and cost per student, 1959-65[1]

Year	Student enrolment	Staff	Recurrent expenditure (M$ million)	Student/staff ratio (staff = 1)	Cost per student (M$)
1959	323	...	1.63	...	5 039
1960	654	71	3.34	9.2	5 105
1961	1 010	91	4.32	11.1	4 273
1962	1 341	109	5.46	12.3	4 071
1963	1 736	151	7.34	11.5	4 229
1964	2 225	190	9.56	11.7	4 297
1965	2 835	231	13.75[2]	12.3	4 850[3]

... Data not available.
1. All student and staff figures refer to the end of the calendar year except 1960 staff (end of August), 1965 staff (end of September), and 1965 student (middle of July).
2. From estimates for 1965.
3. Based on estimates for 1965.

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[1] All costs are expressed in Malaysian dollars: M$3.3 = U.S.$1.

staff[1] population, the increase in recurrent expenditure and changes in student/staff ratio and average cost per student since 1959 are given in Table 30.

Average cost per student. The figures of actual average cost per student between 1959 and 1964 show two successive trends: (a) a steady and considerable fall in average cost from $5,039 per student in 1959 to $4,071 in 1962; and (b) a subsequent small but perceptible rising trend to $4,297 in 1964. The earlier declining tendency was due to a steady rise in the student/staff ratio, from 9.2 students per staff member in 1960 to 12.3 in 1962. The later rise in average cost in 1963 and 1964 can be attributed to (a) a fall in the overall student/staff ratio, and (b) an average increase of about 10 per cent on teaching staff salaries from the beginning of 1964.

Student/staff ratio. As the student/staff ratio is an important determinant of average cost per student, it is desirable to examine the figures in some detail. However, in a rapidly expanding university it is important that such statistics be handled with special care, for the establishment of new faculties may affect the over-all ratio while concealing trends in the older faculties. Such is the case with the University of Malaya. The overall student/staff ratio increased steadily every year between 1959 and 1962 to 12.3 : 1; in 1963 it showed a decline to 11.5 : 1. This was due to the establishment of the new faculties of Education and Medicine in 1963. If the student/staff ratios of the two new faculties were excluded from the computation, the remaining overall ratio would have shown a rising trend, without interruption, since 1959.

Inter-Faculty comparison. In 1964, the latest year for which statistics on the average cost per student are available, it is interesting to note that it costs about twice as much per year to educate a medical student ($15,902) as an agricultural student ($7,219), and only about half as much to educate an engineering student per year ($3,761) as an agricultural student. Perhaps comparison with the Medical Faculty is scarcely appropriate at this stage of the university's development, as the faculty is a relatively new one, but since both Agriculture and Engineering are old by comparison with established faculties the wide disparity in average cost is surprising: it may be attributed mainly to the fact that the Agriculture Faculty has a much lower student/staff ratio (8.8) than the corresponding Engineering Faculty (13.8).

Statistics on student/staff ratio and the average cost per student of each faculty since 1960 are given in Table 31. Table 32 contains statistics on the growth of the staff and student population of each faculty from 1959 to 1965.

It may also be noted in Table 31 that the average cost per student is high or low in inverse proportion to the student/staff ratio. The Medical and Agriculture faculties have the highest average student costs, and the lowest student/staff ratios; the Arts and the Engineering faculties have the lowest average student costs, and the highest student/staff ratios.

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[1] 'Staff' refers to teaching staff only in this note unless otherwise stated.

TABLE 31. University of Malaya: student/staff ratio and average cost per student by faculty, 1960-65

Year	Arts		Science		Engineering		Agriculture		Education		Medicine		University	
	ACPS	S/S ratio	ACPS	S/S ratio	ACPS	S/S ratio	ACPS	S/S ratio	ACPS	S/S ratio	ACPS	S/S ratio	ACPS	S/S ratio
1960	...	12.6	...	4.4	...	13.3	...	5.4	—	—	—	—	5 105	9.2
1961	3 289	13.6	6 667	6.5	3 373	18.0	10 675	6.6	—	—	—	—	4 273	11.1
1962	3 225	16.1	5 667	8.0	3 355	17.4	8 368	6.7	—	—	—	—	4 071	12.3
1963	3 168	16.2	5 582	8.8	3 509	14.3	7 672	7.6	5 606	5.7	...	3.1	4 229	11.5
1964	3 027	17.7	5 467	9.2	3 761	13.8	7 219	8.8	4 584	8.8	15 902	3.4	4 297	11.7
1965	...	19.4	...	10.7	...	13.4	...	8.6	...	12.5	...	3.7	...	12.3

Notes.
ACPS = average cost per student (M$).
S/S ratio = student/staff ratio. Staff = 1.
... = not readily available, not available or not yet available.
— = nil or not applicable.

TABLE 32. University of Malaya: growth of recurrent expenditure, student population and teaching staff by faculty, 1959-65

Faculty	1959		1960		1961		1962		1963		1964		1965	
	Student	Staff	Student	Staff	Student	Staff	Student	Staff	Student	Staff	Student	Staff	Student	Staff
Arts	163	...	354	28	556	41	723	45	908	56	1 188	67	1 496	77
Science	31	...	114	26	203	31	318	40	398	45	462	50	568	53
Engineering	129	...	159	12	198	11	226	13	257	18	262	19	281	21
Agriculture	—	—	27	5	53	8	74	11	99	13	123	14	154	18
Education	—	—	—	—	—	—	—	—	34	6	88	10	150	12
Medicine	—	—	—	—	—	—	—	—	40	13	102	30	186	50
University	323	...	654	71	1 010	91	1 341	109	1 736	151	2 225	190	2 835	231

All figures refer to the end of the year except 1960 staff (end of August), 1965 staff (end of September) and 1965 student (middle of July).

Notes.
— = nil.
... = not available.

TABLE 33. University of Malaya: income and expenditure for 1962, 1963, 1964 (M$)

Income	Actual 1962	Actual 1963	Estimated 1964
Grants:			
Federation Government[1]	5 754 028	7 134 000	7 800 000
Sarawak Government	15 000	15 000	15 000
Brunei Government	—	10 000	5 000
Tuition and other fees	616 910	824 204	1 141 000
Rent on staff quarters	127 933	148 266	156 000
Income from investments	78 476	122 011	80 000
Professional and other fees	2 460	280	1 000
Sundry revenue	27 454	33 456	10 000
TOTAL	6 622 261	8 287 217	9 208 000
Deficit	—	—	1 652 167
	6 622 261	8 287 217	10 860 167

Expenditure	Actual 1962	Actual 1963	Estimated 1964
Staff emoluments	3 359 164	4 390 576	7 352 867
Departmental grants:			
Teaching departments	331 122	501 609	659 630
Administration, library and health service	424 270	548 634	542 950
Block grant (E) special expenditure for equipment	440 675	557 348	650 000
Other charges	903 689	1 344 129	1 654 700
New departments	—	—	20
TOTAL	5 458 920	7 342 296	10 860 167
Surplus	1 163 341	944 921	—
	6 622 261	8 287 217	10 860 167

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[1] Government of the Federation of Malaya.

Examining the available figures (1960/65) on student/staff ratios it is interesting to note that all the faculties show a steadily rising student/staff ratio except the Faculty of Engineering, in which there has been a declining tendency since 1961. As is to be expected, the trend in all faculties is a declining cost per student, except in Engineering where there has been a steady increase. Nevertheless, even in 1964 the Engineering Faculty could still claim to have a per student average cost which, except for the Arts Faculty, was the lowest in the university.

The comparatively high student/staff ratio of the Arts Faculty and its tendency to rise rapidly must be a matter of considerable concern.

Structure of recurrent expenditure. The university's income and expenditure account divides recurrent expenditure into three parts: staff emoluments; departmental expenditure; and other charges. Of the three heads, as is to be expected, the most significant is staff emoluments, which covers the remuneration of teaching and general staff. In 1963, of a total actual expenditure of about $7.3 million, approximately $4.4 million represented staff emoluments (see Table 33).

'Departmental expenditure' is again subdivided into three parts: administrative; teaching departments; and special expenditure for equipment. 'Administrative' expenditure refers to the expenditure of the central administration, that is, the vice-chancellor's office, the registrar's office, the bursar's office, the estates office, the deans' offices, the library and the student health service. Of the $0.55 million or so spent in 1963 under this heading, about $0.45 million was spent on the library.

The subheading 'teaching departments' refers to the special expenditure of each department, such as that on stationery and teaching materials: it also includes research grants by the university. In 1963 expenditure under this subhead came to about $0.5 million, shared by the 23 departments of the university then in existence.

The great spenders on 'special expenditure for equipment' were Chemistry, Geology, Physics and Zoology, which in 1963 together accounted for about $0.43 million out of a total approximate expenditure of $0.56 million for the whole university.

The last main head, 'other charges', which amounted to $1.34 million in 1963, is made up of a long list of miscellaneous expenditure for which the administration is responsible. The most important item ($0.40 million) on the list is 'passages for new appointments, staff on furlough, study leave and hotel expenses', reflecting not only the considerable reliance of the university on overseas staff but also the fairly generous terms which the university offers to both overseas and local staff for home and study leave. The next item in order of size is 'electricity charges', which came to $0.24 million in 1963, an amount largely due to expenditure on the air-conditioning service of the university. The third outstanding item is 'medical charges' ($0.14

million): the university provides free medical attention for all its teaching and non-teaching staff and their immediate dependents.

Sources of recurrent income. By far the most important source of income is the Central Government. In 1963, of the total actual university annual income of about $8.28 million, no less than $7.13 million was met from this source. 'Tuition and other fees' paid by students amounted to about $0.82 million or an average of about $474 per student in the same year. Since a large percentage of the students also receive direct financial aid (scholarships and bursaries) from the Central or State Governments, an important part of this $0.82 million may also be considered as an indirect government contribution to the maintenance of the university. The third significant source of revenue has been 'rents on staff quarters' ($0.14 million in 1963). This, however, has to be offset against both capital and recurrent costs, since the university builds houses which it assigns to staff members at a rental varying from $100 to $125 per month, which is about one-third to one-quarter of the prevailing market rents.

General statements of the income and expenditure of the university for 1962, 1963 and revised estimates for 1964 are given in Table 33.

According to one estimate, the university is likely to have a student population of 7,000 by 1970, compared with the 1965 figure of 2,835. The same source estimates that the recurrent cost by then would be in the region of $35 million per year, based on an average of $5,000 per student per annum. It appears that the bulk of this sum of $35 million will, as in the past, have to be met by the Central Government.

Expenditure on capital development. The University of Malaya is in a rapid state of expansion not solely in terms of student intake, staff recruitment and recurrent expenditure, but also in terms of increasing capital assets. Ever since the first bulldozer started to level the old rubber holdings of the Pantai Valley to accommodate a university campus, building activities have been incessant. At the time of writing (October 1965) work is in progress to complete the final phase of the building programme for the Faculty of Medicine and its Medical Centre, and the Great Hall and Administrative Centre.

Phase I, 1956-1960. The First Phase of the university's construction programme, costing approximately $15.2 million, made possible not only the establishment of the faculties of Arts, Science, Engineering and Agriculture, but also the construction of the university library, two residential colleges for students, a number of houses for staff members, a students' union house and the development of roads within the university. The $15.2 million also included the cost of acquisition of 738 acres of land, only a small part of which has thus far been utilized by the university. Details of various projects and their costs can be found in Table 34.

The land was compulsorily acquired by the government from a large

TABLE 34. University of Malaya: capital development programme (M$)

Institutions	Phase I 1957/60 (actual expenditure)	Phase II 1961/65 (revised estimates)	Phase III 1966/70 (planned expenditure)
Faculty of Arts	1 022 307	948 000	1 800 000
Faculty of Science	2 215 455	2 358 400	6 664 000
Faculty of Engineering	1 542 000	1 000 000	1 000 000
Faculty of Agriculture	1 905 425	—	2 620 000
Faculty of Education	—	775 000	1 710 000
Faculty of Medicine	—	12 277 800	—
Library	402 352	1 900 000	1 250 000
Administration, Great Hall, and Theatre, etc.	—	2 750 000	—
Residential colleges	2 211 268	6 345 474	8 000 000
Staff housing	3 151 851	5 930 000	4 600 000
Students' union house	188 344	—	200 000
Roads, external services and land	2 522 127	500 000	1 250 000
University Centre	—	—	10
Computing equipment	—	—	1 000 000
School of Dentistry	—	—	1 000 000
School of Architecture	—	—	1 100 000
TOTAL	15 161 129	34 784 674	32 194 010

number of private owners, many of whom resorted to the law courts for increased compensation, nearly all with some success. The rest of the land was sold to the university by the Selangor State Government and the Petaling Jaya (urban) Authority. The distribution between these three sources was as follows: State land, 224.312 acres; alienated land acquired from Petaling Jaya, 63.700 acres; alienated land acquired from private owners, 450.043 acres; total 738.055 acres.

All in all, the Central Government, on behalf of the university, paid $1,437,500 for the 738 acres, roughly $1,948 per acre or slightly less than 0.05 cents per square foot.

At the time of writing, comparable undeveloped rubber land in the vicinity of the university is known to have been sold for from $1 to $1.60 per square foot.[1] If present land values were conservatively estimated at $1 per square foot, the total land value of the university campus would be about $32.2 million, compared with the $1.4 million actually paid. This spectacular rise in land values in the region must be partly attributed to the establishment and development of the university itself and partly to the developing values promoted by the adjoining industrial satellite of Petaling Jaya.[1]

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[1] The undeveloped land recently acquired by the University Staff Housing Co-operative Society, for instance, came to about $1.25 per square foot.

Phase II, 1961-1965. The revised estimates show that the Second Phase in the university's development programme should cost about $34.8 million, slightly more than twice the amount spent on the First Phase (1956-1960). Two new faculties have been established during Phase II, the Faculty of Medicine and the Faculty of Education; the construction cost of the former is expected to reach $12.3 million while the latter is estimated at the very much lower figure of $0.78 million. The Administrative Building, Great Hall and Theatre, a complex in an advanced stage of construction, should amount to about $2.8 million. Two slightly larger residential hostels for students and a further number of staff housing units have also been added, together with important extensions to buildings of the faculties of Arts and Science and the library (see Table 34 for more details).

Excluding the cost of land and books, the library cost $2.3 million, $0.4 million being spent in the First Phase and $1.9 million in the Second Phase, adding 65,000 square feet of usable floor space which, together with the 9,000 square feet in the First Phase, provides a total of 74,000 square feet. The present stack and seating capacities of the library are:

Stack capacity. First Phase, 45,000; Second Phase, 150,000; total 195,000 volumes.

Seating capacity. First Phase, 120; Second Phase, 240; total 360 places.

In considering the seating capacity of the library, it may be recalled that already in 1965 the university enrolment numbers 2,835 students, about 60 per cent of whom do not live in the four residential colleges.

Phase III, 1966-1970. In the Third Phase, as can be seen from Table 34, the planned expenditure is estimated at $32.2 million, an important part of which is intended for the extension of the buildings of existing faculties. One new faculty and two new schools are to be established during the Third Phase, namely the faculty of Economics and Administration (shown under Arts in Table 34), and the schools of Dentistry and Architecture. A $1.25 million extension of the library is also provided for.

Sources of capital grants and income. As in the case of recurrent expenditure, the Central Government has provided the bulk of the costs of capital development. By the end of 1963, for instance, of the total sum of $30.9 million thus far received by the university to meet development expenditure, as much as $25.8 million came from the Central Government: much of the balance was contributed by the United Kingdom ($2.6 million) and New Zealand ($1.5 million).

Donations from private individuals and organizations to meet the mounting expenditure of the university are shown separately from the capital and recurrent accounts. They do not constitute an important item in relation to either of the two accounts. There is little doubt that the university has not yet taxed other sources of finance to the full.

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[1] Nature, assisted by admirable planning, has enabled the university and the complex of light industries to occupy opposed and mutually invisible slopes of a ridge.

College finances. There are at present four residential colleges, housing a total of 1,139 students. The total cost of building the four colleges came to about $5.2 million.

It appears that roughly $4,500 is needed to provide accommodation for each student. Thus, if by 1970 the estimated student intake of 7,000 were to be fully housed on the campus about $26.4 million would have to be made available for the Third Phase of the development programme. Actually, only $8 million is allotted to increased student accommodation: this will provide for another 1,777 students. Accordingly some 3,916 students will be accommodated by 1970, which on present estimates of enrolment will amount to about 56 per cent of the student body, as compared with 40 per cent at present accommodated.

Each of the four colleges is more or less self-financing. The total running expenditure of the First College, for instance, amounted to $299,493 in 1964 and the actual income to $303,473, yielding a surplus of $4,034.

The main item of expenditure in all the colleges is, as might be expected, food which, for the First College, came in 1964 to $132,975 out of a total expenditure of $299,439. The rest of the expenditure consisted of a wide variety of items of which personal emoluments of college staff, laundry, building maintenance and cost of gas and electricity were the most important.

The running cost per student varies from college to college: ranging from $961 in the Third College to $1,164 in the Second in 1964. Each student has to pay a hostel fee of $330 per term or $990 per year. The rest of the colleges' income comes from several sources of which vacation fees paid by students and non-students residing during vacations are the most significant. Thus, in so far as the university is subsidizing student expenditure in the residential colleges, it is confined to capital expenditure.

More students could be enrolled were capital costs to be reduced: indeed by this means more faculties could be created, though this would most probably mean a general reduction in the standards of new buildings. There is also, it would seem, some room for the reduction of recurrent costs without the lowering of the present high academic standards which there is no doubt the university would wish to maintain.

THE TECHNICAL COLLEGE

The early history of the Technical College has been briefly recounted above (see p. 311). The college re-opened on its present site in 1955, and by 1960 it was providing: (a) diploma courses in engineering, architecture and surveying to train technical cadets for government services; (b) a five-year, professional training, which started in this year, leading to full qualifications in engineering, architecture and surveying.

A preliminary one-year course was also being conducted to facilitate the entry of pupils from remote rural areas who would find difficulty in meeting the admission requirements.

It was possible, as it still is, for students to sit for and obtain a Higher School Certificate whilst in training, and thus to gain admission to the Faculty of Engineering at the university.

By the academic year 1965/66 the range of studies at the college had developed into:

1. Three-year full-time courses for the college diploma in: architecture, civil, electrical (power, radio and television) or mechanical engineering, land surveying, quantity surveying, town and country planning. The basic entrance qualification is a Grade II School Certificate with credits in the national language or English, elementary mathematics and science.
2. Four-year professional courses in civil, electrical and mechanical engineering and land and quantity surveying. These courses are open to students with a Higher School Certificate and passes at principal level in mathematics and physics, and are recognized as leading, after practical experience, to membership of the appropriate professional bodies.
3. Evening courses for the Higher School Certificate in physics, chemistry, mathematics and the general paper, and a three-year part-time course for the Certificate of Draughtsmanship of the Federation of Malaya Society of Architects. Various other evening courses in land surveying, quantity surveying, radio servicing and astronomy are conducted as occasion demands.

Students fall into two categories, private students who pay fees of $240 per annum for diploma courses and $360 per annum for professional courses, and technical apprentices, selected by the Public Services Commission, who undergo a year's training with the department to which they will be appointed either during or after their course. There are also students in the preliminary course who are eligible for a government allowance of $100 a month, such as is paid to technical apprentices; this is offset against hostel and messing charges.

The college has a range of seven workshops and laboratories for advanced physics, chemistry, electronics, television, metallurgy, meteorology, structures and soil mechanics: the library has a stock of 20,000 volumes. A vigorous social and sporting life is followed by the students, and a major extra-curricular activity has been the setting up, with the assistance of the Telecommunications Department, of a satellite earth station for tracking activities: an azimuth elevated antenna pedestal has been installed on top of a 60-foot tower.

TABLE 35. Technical College: annual enrolment and output of diploma courses, 1960/61 to 1965/66

Session	Civil engineering	Mech. engineering	Electrical engineering			Surveying		Chartered surveyor	Town and country planning	Archi- tecture	Total in- take	Total enrol- ment
			Power	Radio	Television	Land	Quantity					
1960/61												
Intake	50	34	8	11	—	9	4	1	6	15	138	355
Graduates	45	6	13	9	—	6	2	—	2	12	95	
1961/62												
Intake	100	30	21	5	—	16	8	5	4	19	208	458
Graduates	31	8	11	18	—	18	2	2	—	13	103	
1962/63												
Intake	54	31	13	30	—	10	7	3	1	17	166	445
Graduates	29	12	7	6	—	6	3	3	3	12	81	
1963/64												
Intake	52	38	22	21	9	15	11	—	4	21	193	448
Graduates	43	13	9	6	—	6	5	—	3	11	96	
1964/65												
Intake	52	20	16	25	9	9	15	—	4	23	173	590
Graduates	74	82	13	9	—	9	9	1	3	13	160	
1965/66												
Intake	62	46	24	54	1	16	14	2	4	24	247	640
Graduates												

TABLE 36. Technical College: enrolment in professional courses, 1960/61 to 1965/66

Session	Intake					Total enrolment
	Civil engineering	Mechanical engineering	Electrical engineering	Royal Institute of Chartered Surveyors	Total	
1960/61	9	4	5	6	24	27
1961/62	3	3	4	2	12	40
1962/63	2	2	3	1	8	32
1963/64	5	5	—	2	12	40
1964/65	1	1	—	3	5	38
1965/66	8	10	6	2	26	44

There is no difficulty over the recruitment or the placement of students, as some 85 per cent of their number are sponsored by government, quasi-government or commercial bodies; even the remaining 15 per cent are nearly all assured of posts before taking their final examination. The evening classes are used largely by the police, medical technicians and architectural draughtsmen. Wastage is noticeable (about 20 per cent) only at the conclusion of the first year, when students obtaining a Higher School Certificate either join the Faculty of Engineering at the university, or go abroad for further education.

In 1965/66 there were 681 full-time students attending the college of whom 435 were Chinese, 172 Malay, 63 Indian; 11 being unclassified. The proportion of Malays is more encouraging than that to be found in the Faculty of Engineering at the university (see above, p. 362).

The staff in the previous year included 27 full-time members, together with 12 members supported by overseas organizations, 4 through the Colombo Plan, 2 from Unesco, and 6 by the Peace Corps. There were also 3 instructors, and 27 part-time staff (largely for evening classes). The college has found it difficult to obtain and retain staff owing to conditions of service which are not proving attractive to technical teaching staff.

Tables 35 and 36 show, respectively, annual enrolment and graduation (by course and total) in the diploma courses, and enrolment in the professional courses.

It is too early to assess the productivity of the professional courses, but in the last three years twenty-five Part I and five Part II passes have been gained in the professional examinations of the three institutes of engineering, and five passes in the first professional, and one in the intermediate examination of the Royal Institute of Chartered Surveyors.

Projections made on a sample basis by a committee investigating high-level manpower needs in the technical field indicate an average annual growth rate of 156 technologists in six main disciplines—electrical, structural, civil and mechanical engineering, radio and electronics engineering and communications engineering—and 456 technicians in twelve fields of activity, adding various types of surveying and draughtsmanship, and chemical and mining engineering, to the first list.

The annual output of technologists from the University of Malaya and from the Technical College has been:

	1960/61	*1961/62*	*1962/63*	*1963/64*	*1964/65*
University	24	17	26	31	51
Technical College	—	10	5	8	2
	24	27	31	39	53

The output of technicians from the college, the only training centre save in very specialized fields, is shown in Table 37 for both the public and the private sectors.

It is clear from these figures that, even allowing for technologists trained overseas, the country is at present unable to produce either the technical personnel needed by development (the figures quoted above), or to complete the replacement of technical personnel whose services are being lost through the policy of Malayanization.

In meeting this difficulty it might be useful to distinguish between the training of technical assistants and that of lower-level technicians, a distinction based both upon occupational gradings and educational background, and the extent of training.

If this were done, it would be possible for the Technical College, admirably sited, but not lavishly equipped, to expand, much on the lines of the Singapore Polytechnic, first to a college of technology, and then to a technological university, moving from the training of technical assistants to training technologists, while the training of technicians might be undertaken

TABLE 37. Malaya: output of higher-grade technicians, 1960-65

	1960	1961	1962	1963	1964	Provisional 1965
Total intake	115	238	200	233	215	322
Percentage private	17.5	5	16	24.5	24.7	15
Percentage government	82.5	95	84	75.5	75.3	85
Total output	—	106	97	76	99	130
Percentage private	—	11	31	31	25	11
Percentage government		89	69	69	75	89

in the new technical college or colleges envisaged, but not in specific terms, in the Malaysian Plan.

It may be suggested that to further this end the college, which is at present a government institution responsible to the Ministry of Education, which is advised by a Governing body—a misleading appellation for an advisory body—should be reconstituted as an autonomous college, with a council having full responsibility, when its estimates have been approved by the government, for the control of the College. In this way, industry and the various government departments requiring the products of the college could have an effective, and not a nominal, voice in directing the affairs of the college: indeed, without such powers it is unrealistic to imagine that industry will contribute the experience and the facilities which institutions of technology so badly need. In these circumstances it would be possible to review the staffing oganization of the college, and offer terms of service which would attract staff of the necessary quality prepared to devote a reasonable proportion of their career to its development.

Before such a step is taken, however, it would seem that, with the development of 'comprehensive education' and the consequential need to reformulate the functions of the technical secondary schools and specialist upper secondary schools at the apex of the secondary system, a full review should be made of the provision of technical education at all levels—a review which would most certainly need to include the needs of Sabah and Sarawak. The forthcoming publication of a long-awaited government report on high-level manpower would make such a review most opportune.[1]

THE COLLEGE OF AGRICULTURE, SERDANG

The College of Agriculture was established as long ago as 1931 by the Ministry of Agriculture as an Agricultural School offering a two-year course, principally with the object of training future officers of the department.

In 1947 it was granted college status, and a year later the diploma course was lengthened from two to three years, since when it has trained personnel both for the Department of Agriculture, for the Rubber Research Institute, and for the land utilization activities of rural development.

The college is now controlled by a council which is, by statute, an authority of the University of Malaya, an arrangement which happily brings it into close contact with the Faculty of Agriculture. Indeed, the dean of the faculty is chairman of the Board of Studies of the council, though the principal of the college has no constituent responsibilities to the faculty.

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[1] A powerful Special Committee reported on the use of the Technical College in 1955 at the time of its reopening on a new site, but it considered the position of the college almost *in vacuo*, without reference to the manpower needs of government or industry, or the general background of technical education in the country. The report (Kuala Lumpur, Government Printer, 1956), is now out of date.

The site of the college, some 14 miles south of Kuala Lumpur, is set in most agreeable surroundings: a hostel accommodates 120 students, and teaching buildings include six new laboratories, a workshop, lecture rooms, library, museum and assembly hall. The college farm of 300 acres is being developed as a commercial unit, and appears to grow every tropical crop from tea to coco-nuts, from rubber to rice, from Brazil nuts to pineapples.

At present the college offers only a three-year diploma course, the entry qualification being a School Certificate, grades I or II with a pass in the national language, and credits in English and elementary mathematics. Candidates who also have credits in general science I and II or a combination of chemistry and biology may be admitted directly to the second year.

Plans have been made, however, to expand residential facilities to permit short and post-diploma courses to be offered, the first of which, planned for mid-1966, will be a six-month certificate course in rubber and oil palm for recruits to the planting industry.

A wide range of scholarship opportunities is offered at the college by the Rubber Research Institute, the Rubber Industry (Replanting) Board, the Federal Government (through the Ministry of Agriculture), the Malayan Estate Owners' Association and the Federal Land Development Authority: this list is indicative of the bodies interested in the output of the college (see Table 38).

Unfortunately, most students come from urban schools, possibly seeking further education rather than activated by an urge to work on the land: there are few women students as there are no adequate government scales on which they might be placed. Furthermore, the majority of the students are Chinese, 67 out of 112 in 1965/66, as compared with 37 Malays, though much of the work of rural development is based on Malay areas of the country. Possibly a preparatory course for Malay students who encounter examination difficulties—those for example from the east coast where educational facilities are not good—such as is in action at the Technical College, would help to remedy the position.

The staff of the college is for the most part locally recruited but trained overseas: the principal himself obtained a degree in agriculture at Reading (United Kingdom), followed by a research doctorate at Leeds, and was appointed from the staff of the Ministry of Education. For a student body of 112 the generous staffing establishment is an academic staff of 14 and a non-academic staff of 30. Table 38 shows the distribution of students by race in the three years of the course in 1965/66, together with the sponsoring bodies: Table 39 lists the avenues of employment followed by graduates in the years 1960-64.

The Malaysian Plan proposes to quadruple the entry at Serdang,[1] and to build two further colleges. It will not be easy, even in Malaya, to find a more

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[1] This step is to be taken in May 1966.

TABLE 38. College of Agriculture: diploma course enrolment by race and sponsoring body, 1965/66

Category	Malays	Chinese	Indians	Others	Total
First year, 1965-68					
Federal agricultural scholars	4	—	—	—	4
Sarawak Government scholars	3	—	—	—	3
Sabah Government scholars	1	3	—	1	5
Rubber Research Institute scholars	4	3	—	—	7
ICI scholar	—	1	—	—	1
Malayan Estate Owner Association scholar	—	1	—	—	1
South Indian Labour Fund Board scholar	—	—	1	—	1
Private students	1	11	3	—	15
TOTAL	13	19	4	1	37
Second year, 1964-67					
Federal agricultural scholars	5	5	—	—	10
Sarawak Government scholars	—	3	—	1	4
Rubber Research Institute scholars	4	2	—	—	6
Federal Land Development Authority scholars	2	1	—	—	3
Rubber Industry (Replanting) Board scholar	1	—	—	—	1
Private students	—	14	1	—	15
TOTAL	12	25	1	1	39
Third year, 1963-66					
Federal agricultural scholars	9	2	1	—	12
Rubber Research Institute scholars	1	2	—	—	3
Rubber Industry (Replanting) Board scholars	1	2	—	—	3
Federal Land Development Authority scholars	—	2	—	—	2
Private students	1	14	1	—	16
TOTAL	12	22	2	—	36
GRAND TOTAL	**37**	**67**	**7**	**2**	**112**[1]

[1] Male, 104; female, 8.

TABLE 39. Avenues of employment of graduates, 1960-64

	1960	1961	1962	1963	1964
Government service	17	11	18	14	14
Teaching	1	1	—	—	—
Commerce	2	2	—	—	—
Farming	—	—	—	—	—
Further studies	1	2	1	—	1
Industry	—	—	—	—	—
Others	3	6	7	15	8
TOTAL	24	22	26	29	23

beautiful site, and a more attractive set of buildings. Neither will it be easy to find equally dedicated staff.

OTHER INSTITUTIONS

Brief mention may be made of three other institutions, the Muslim College, the MARA College, and the National Productivity Training Centre. Reference has already been made to the two latter; they are essentially offering training courses, and while their contribution to the commercial activities of Malaya is of considerable significance they do not properly fall into the categories of institutions dealt with in this study. The Muslim College at Klang, about to be rehoused at Petaling Jaya with a grant of over $2 million from the government, is at present essentially a theological training institution also offering courses in Islamic culture. It is likely that its functions will be broadened when it is reconstituted in its new premises.

HIGH-LEVEL MANPOWER

A Higher Education Planning Committee was set up in 1962 to estimate high-level manpower needs up to 1980, and to plan the educational provision necessary to meet this demand.

The profile has been kept open until the last possible moment (31 March 1966) in the hope that the report of this committee would be made available in time for its evidence, conclusions and recommendations to form the basis to prepare, and been able to command all the resources of government and publication of the report is expected in April.

In the absence of an extremely detailed study which has taken four years to prepare, and been able to command all the resources of government and university, it does not appear profitable to speculate at any great length on questions of output in relation to demand.[1]

The study has not been alone in this dilemma. It became necessary to publish the First Malaysia Plan well in advance of the formulation of the Higher Education Planning Committee's proposals. This situation had apparently been anticipated. In 1965 a manpower survey based on sampling was carried out, and a subsequent assessment of manpower needs made, by a Manpower Planning Section set up in the Economic Planning Unit in the Prime Minister's Office. (The unit will in due course also study the manpower needs of the Borneo States.)

In the manpower section of the Malaysia Plan it is suggested, on the basis of general experience, that the rate of high-level manpower should increase at a rate at least double that of general increase in employment. This suggests a growth rate of at least 5.6 per annum. However, this could be achieved by an even rate of growth: bottle-necks have to be expanded, and the effect of educational development already in hand should make itself felt by the 1970's. In the meantime, nearly 30 per cent of jobs in Malaya requiring a third-level education are vacant, or filled by non-Malays, and represent posts for which Malayan replacements would be difficult to find, a situation which has not always halted the process of Malayanization effected by the requirements of a system of work permits. In the public service in 1964 only 75 per cent of the 3,500 vacancies were filled. In the teaching service an estimated 5,000 posts are either vacant or filled by under-qualified staff.

Indeed in the teaching field the plan estimates that in 1966-70 more than 2,000 additional teachers with graduate qualifications and diplomas will be needed with technical or scientific qualifications to meet the expansion of upper secondary and higher education. With an annual output of 100 diploma holders from the Faculty of Education, and a considerable part of the graduate output of the Arts Faculty as a source of recruitment, this target still seems impossible of attainment since the required qualifications are not covered by the fields of study of the potential recruits.

The problem of agricultural development is on a smaller scale, but is formidable enough: during the plan period agricultural research alone will call for 400 additional graduates or technicians, while activities such as the Federal Agricultural Marketing Authority will need a substantial number of graduate officers. Indeed, a memorandum by the dean of the Faculty of Agriculture[2] has calculated, upon a basis of one field worker (Category III) to 500 acres of smallholding land,[1] four field workers to one field supervisor (Category II) and one graduate (Category I) to 2.5 field supervisors, that an annual output of 120 graduates from the university and 372 diplomates from Serdang would be required over the next five years. Such growth would entail trebling the output of the university faculty and raising the output of diplomates tenfold, from 35 to 372, which would involve quadrupling the output of Serdang, and establishing two other colleges, as has been envisaged above. The Category III field operatives would be supplied from agricultural higher secondary schools, established in the follow-up stage after the 'comprehensive education' scheme, though it may be doubted whether students reaching School Certificate level would be eager recruits for agricultural field work at the lowest level.

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[1] The director of the study was invited to address both working parties of the committee on the proposal to establish an Institute of Higher Education and Development in South-East Asia, a proposal adumbrated in the main report (Volume I, Chapter 13), and was indeed able to render some assistance to individual members of the committee, but it did not prove possible to obtain official access to the working papers or the draft report before publication.

[2] *Agricultural Education at Different Levels in Malaysia* (Kuala Lumpur, University of Malaya, Faculty of Agriculture, 1965, mimeo.).

The same problem exists in fields such as health, medicine and technology, and despite major advances such as the Medical Centre, the output of which is designed to reduce the doctor/population ratio from 1 : 6,100 to a proportion nearer the 1 : 1,000 of developed countries, the plan considers that: 'In the case of the scientific and technological specialists needed in large numbers for implementation of educational, agricultural and health programmes and of the industrial analysts and specialists needed for rapid expansion of private investment, expanded recruitment of foreign specialists on a temporary basis will be required to achieve the plan goals. This will be accomplished in such a way as to protect fully the rights of citizens to priority consideration for the specialist jobs as they gain the requisite qualifications. Such use of specialists on a temporary basis with Malaysian counterparts will speed the acquisition by Malaysians of needed experience.'[2]

In practice, this frequently appears to mean the departure, under the policy of Malayanization, or loss of promotion prospects, of technical and professional staff well versed in the particular needs of the country, and attempts, not always successful, to replace them by further expatriate staff on short-term contracts, or by short-term Technical Assistance experts. Unfortunately, since Technical Assistance is not yet a career service, it is not always possible to secure the services of experienced men in early middle-age, and the quality of experts is likely to be variable, and the time of their adjustment to new conditions out of all proportion to the length of their contract. This second objection can also be raised against such forms of aid as the Peace Corps, or Voluntary Service—but their personnel are younger and more adaptable, though not so experienced. Such assistance is useful in stopping gaps (i.e., as architectural draughtsmen or specialist secondary teachers) but young volunteers seldom have the experience or qualifications to train counterparts, and the essence of technical assistance should be the built-in capacity of the expert to bring about the termination of his own services not only by

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1. But the present ratio is 1:3,000 acres.
2. *First Malaysia Plan, 1966-70*, op. cit., p. 87.

TABLE 40. Educational output trends in Malaya, selected years, 1960-70

Level of attainment at completion of education[1]	Number completing education				
	1960	1965	1967	1968	1970
University	47	657	740	1 050	1 700
Technical and agricultural colleges	99	203	230	250	330
Sixth form (and Muslim College)	692	1 756	4 900	6 150	5 870
Teachers' colleges[2]	2 130	2 531	6 200	6 310	7 160
Upper secondary:	9 724	14 494	23 870	23 920	54 370
Academic	9 338	13 728	23 200	22 960	41 580
Technical	107	306	480	560	4 180
Vocational	279	460	190	400	8 590
Lower secondary	4 782	23 752	38 200	73 400	99 100
Primary	140 947	45 309	30 800	26 100	20 900
TOTAL	158 421	88 702	104 950	137 180	189 410

Source: *First Malaysia Plan, 1966-70,* op. cit., p. 83.

1. Includes drop-outs and failures at each level as well as those completing successfully. Those who will continue their education on a full-time basis are not included in these 'output' figures.
2. Includes a large number whose training will have been of a part-time, in-service nature.

training his counterpart, but by serving as a nucleus of training to an extended group involved in his operations, whatever they may be. This facet of technical assistance is lamentably neglected.

The plan does not overlook the need for the development of managerial skills and the flair and expertise of the entrepreneur: faith is placed upon the expansion of the Department of Economics at the university into a faculty of economics and administration, the development of managerial skills at the Petaling Jaya National Productivity Centre, and the growth of commercial training (for Malays only) at the MARA College.

A projection of trends of educational output is included in the Malaysia Plan. Table 40 shows, amongst other trends, the estimated rise in level of educational attainment by 1968 when the first leavers from 'comprehensive education' emerge, and also the production, largely by emergency training, of teachers. The projection envisages that over the five years the total production, including those trained overseas, of university or college graduates (excluding the output from teachers' training colleges) will be of the order of 15,000, which will produce an annual net increase of 1,800 (3,000 — 1,200) after allowing for replacements caused by death or retirement. The rate of

TABLE 41. Total manpower requirements and educational output, selected occupational groups, 1965-70

Total manpower requirements by type of training[1]		Educational output by level and type of attainment	
Type of training	Total manpower requirements 1965-70	Total output 1965-70	Level of attainment of school leavers[2]
Professional (University degree):	11 155	5 800	University
General	(3 558)	(2 200)	
Specialized	(7 597)	(3 600)	
Sub-professional (School Certificate plus one year of additional training):			
Junior executives, accountants, etc.	5 000	25 000	Form VI and Muslim College
Teachers	22 718	8 000	Teachers' colleges; 25 per cent of their output[2]
Specialists	8 689	1 500	Agricultural and technical colleges
Skilled (School Certificate *or* Lower Certificate of Education plus specialized training):			
Craftsmen[3]	32 241	23 000	Vocational and technical streams, upper secondary
Teachers	12 114	24 000	Teachers' colleges; 75 per cent of their output[2]
Other white-collar	21 608	145 000	Arts and science streams, upper secondary

1. Half of the anticipated increase in managers is arbitrarily allocated to the sub-professional level in recognition of the fact that the society will continue to develop and use managers who do not have a degree; the remaining managers and half the professional-level teachers were assumed not to require a specialized degree.
2. Outputs are from Table 40 above. However, of the total output of teachers, only 25 per cent is allocated to the sub-professional level in recognition of the fact that many of them (during this period) will not have attained a School Certificate followed by one or more full years of training. Output of specialized personnel from the university is a gross estimate that is undoubtedly on the high side.
3. Requirements for skilled craftsmen are substantially underestimated due to under-coverage of the construction industry and other difficulties caused by sampling.

TABLE 42. Employment expansions and educational output, 1965-70; a model of the entire economy

Education and training requirement	Net employment expansion, 1965-70, total		Education outputs: distribution in selected years			Educational attainment of school leavers
	Number	Distribution	1965	1968	1970	
		%	%	%	%	
Total employment expansion	377 000	100.0	100.0	100.0	100.0	Total output
Sectors surveyed: expansion	251 000	—	—	—	—	
Professional (university degree):[1]	**7 463**	**2.0**	**0.7**	**0.7**	**0.9**	University of Malaya
General	2 254	0.6	0.4	0.4	. . .	
Specialized	5 209	1.4	0.3	0.3	. . .	
Sub-professional (School Certificate plus at least one year of additional training:[2]	**30 510**	**8.1**	**2.9**	**5.8**	**4.2**	
Junior executives and accountants[1]	3 475	0.9	2.0	4.4	3.1	Form VI and Muslim College
Teachers[3]	19 300	5.1	0.7	1.2	0.9	Teachers' college; 25 per cent of their output[4]
Specialists	7 735	2.1	0.2	0.2	0.2	Agricultural and technical college
Skilled (School Certificate *or* Lower Certificate of Education plus specialized training):	**69 317**	**18.4**	**18.4**	**20.8**	**31.4**	
Craftsmen	45 990	12.2	0.8	0.7	6.8	Vocational and technical streams of upper secondary
Teachers[3]	5 500	1.5	2.1	3.4	2.8	Teachers' colleges; 75 per cent of their output[4]
Other white-collar	17 827	4.7	15.5	16.7	21.8	

Semi-skilled and unskilled (Lower Certificate of Education or less):	**269 894**	**71.6**	**77.9**	**73.0**	**64.3**	Primary and lower secondary school leavers
Blue-collar	93 682	38.2				
White-collar	50 212					
Sectors not surveyed (non-estate agriculture; small farmers and fishermen)	126 000	33.4				

1. One-half the anticipated increase in managers is arbitrarily reallocated to the sub-professional level in recognition of the fact that the society will continue to develop and use hired managers who do not have a university degree.
2. Very arbitrarily, the remaining managers and half the (professional-level) teachers are assumed not to require a specialized degree.
3. Requirements for teachers at the sub-professional and skilled levels have been projected on the assumption that sub-professional teachers are desirable for the entire expansion in secondary-school classes and that teachers of lesser qualification will be used in numbers equivalent to the net increase in primary-school teachers.
4. Of the total output of the teachers' colleges, only 25 per cent is allocated to the sub-professional level; this is in recognition of the fact that many of their graduates (during this period) will not have attained a School Certificate followed by one or more full years of training.

increase is about 2.5 per cent per annum as against the required estimate of 5.6 per cent per annum.

Based on these projections, the Manpower Section of the Economic Unit has drawn up a 'preliminary over-view' of the total estimated manpower requirements between 1965 and 1970 and compared them with the projected outputs at the various educational levels:[1] two tables are given, the first in general and the second in analytical form. The details in Table 41 relating to the proportion of employment opportunities represented and not represented have here been omitted.

The Manpower Section makes every reservation as to the precision of the comparisons, dwelling upon such difficulties as the omission of those trained overseas from the estimates of educational output, the partial nature of the basic survey, and the difficulty, common to all manpower studies, of equating job needs with educational qualifications.

Confidence is expressed, however, in the general accuracy of the deductions which it makes from the tables, namely:

1. The quality of the labour force is being upgraded rapidly at the lower levels: by 1970 some 35 per cent of new entrants to the labour force should have a higher qualification than the Lower Certificate of Education (nine years schooling).
2. The position is less satisfactory at the higher levels. Ten per cent of the available jobs call for professional or semi-professional qualifications; only 5.1 of the output will have them.
3. A serious discrepancy will be found (as has already been noted in this profile) between the requirements for secondary-school teachers at the sub-professional level, i.e., for upper secondary schools, and the output. The vacancies will have to be filled from teachers with lower qualifications: this will not enhance the prospects of raising the quality of education.
4. A further discrepancy lies in the requirements of the professional and sub-professional specialist categories covering scientists, engineers, doctors, accountants and other professions for which technical training is needed (see above, pp. 388-9). In the professional field the requirement is 1.4 per cent of output, the supply 0.3 per cent with the requisite qualifications: in the sub-professional group the discrepancy is even greater—2.1 per cent required, 0.2 per cent available. The profile has already noted the inadequacy of the outputs of the Technical College and Serdang Agricultural College to meet the demands of technology and agriculture.
5. The supply of craftsmen should increase as the new educational pattern develops.
6. A major danger is to be seen in Table 41 showing the imbalance between jobs actually requiring Higher School Certificate qualifications (5,000) and

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[1] This unpublished paper is still in draft form.

the number leaving school for employment with this top school qualification (25,000). Further, this appears to be a rising trend. From this surplus it should be possible to recruit good clerical staff (though salary scales would have to recognize two years post-certificate schooling, since the School Certificate is the lowest qualification for clerical work) or for teaching. A more satisfactory solution would be the further provision of sub-professional training, particularly in technical fields.

The manpower prospects outlined in this profile, and more particularly in the section on higher education and this section itself, may be compared with the much fuller treatment to be found in Hunter, where each State is treated individually (including Singapore, which at the time Hunter was writing was a member of the Federation) and a summary covers the whole federation.

In terms of institutions, rather than figures, Hunter recommends:

1. A diploma-level nucleus of a later university college of Eastern Malaysia with entry at School Certificate level. If fragmented into institutions in Sabah or Sarawak, these would cover agriculture, forestry, technology, education and administration.
2. A second technical college in Singapore soon after 1970.
3. One, or possibly two, new technical colleges in Malaya with a combined annual output of 500.
4. The expansion of Serdang College to produce an annual output of 100, and an agricultural institute on the East Coast of Malaya.
5. A possible commercial college in Kuala Lumpur.
6. Two new universities, or university colleges, in Malaya, one at Penang (1967) and one soon after 1970 in the south. One at least should have an engineering faculty.
7. With a ratio of 1 : 5,000 a second medical school in Malaya would not be necessary: a reduction to 1 : 2,500 would necessitate a new medical school after 1970.

The first priority, though it does not necessarily entail the provision of new institutions, is given to the provision of university graduate teachers for upper secondary schools, to which might be added particularly those with qualifications in science—a shortage yet to be overcome in planning the supply of teachers, though the introduction of a B.Ed. three-year first-degree course would contribute greatly to a solution.

These proposals have in general been endorsed in the report and in these profiles. It remains to compare these views of necessary educational development at the higher level with those which will emerge from the government's long and painstaking study.

NOTE. *The profile of Laos begins with an apology for brevity: this profile should perhaps ask that its considerable length be condoned.*

The fact that the Office of the Study was situated in Malaya did not *necessarily imply that a wealth of information could easily be gathered: in fact this did not prove to be the case; but the generosity of the university in housing the office brought the staff into close contact with a number of aspects of the development of a new and flourishing university, and these opportunities should have been reflected in the profile. Thus it is hoped that the reproduction of the notes on the finances of the university contributed by a faculty member to the main report will be of interest to planners throughout the region who will be concerned with building new institutions, though they enter into more detail than it has generally been found possible to include.*

All the profiles in this volume have been selective, and despite its length the quantitative aspects of Malayan education have perhaps been given less attention than they have in a number of other profiles. The reason for this may have been gathered from the text (pp. 326-7). For some years to come, the most exhaustive calculations of Mr. Doh Joon Sue, which have so kindly been placed at the service of the study, will surely render other ventures into the field of enrolment projections an unnecessary labour. Mr. Doh's two theses are to be found in the library of the Faculty of Economics and Administration.

Singapore

BACKGROUND

INTRODUCTION

There is some measure of superficial resemblance between the Republic of Singapore and the Isle of Wight. Both islands are appendages at the southern extremity (Singapore) or base (Isle of Wight) of a major land mass from which they are separated by a narrow ocean channel (breached by a causeway in the case of Singapore), giving shelter to great naval bases. Both are roughly shaped like parallelograms inverted on their diagonals. The area of Singapore Island is 220 square miles, of the Isle of Wight some 150 square miles. But there the similarities cease. The population of the Isle of Wight is 94,000, that of Singapore over 1.7 million: the business of one is catering to holiday leisure—the business of the other is more business.

Singapore, with mangrove swamps deeply indenting its coastline and fringing all but its south-eastern shores, is in essence a great conurbation surrounding the port area and constantly expanding northward and eastward into a suburban sprawl: two-thirds of the population live within an area of 38 square miles. On the north of the island is the naval base, on the eastern extremity the international airport, and to the west of the city, past the military area of Pasir Panjang, the new and flourishing industrial estate of Jurong. For the rest—golf courses, reservoirs, and patches of market gardens, rubber, coco-nut palms, scrub, second growth forest and swamp. From the water front in the south across the island to the causeway giving access to Malaya stretches a continuous ribbon development of small industries: the manufacture of radio and television components, batteries, glassware, food products, bricks and building materials.

In 1963 the vast dock area handled the traffic of 23,250 ships of over 75 registered net tons arriving and departing from Singapore: their aggregate displacement amounted to 82,210,262 net tons. The city centre, complete with a wide range of neoclassical public buildings, still preserves, on the water front, the inevitable cricket club and *padang*:[1] the business quarter displays the usual undistinguished huddle of elongated reinforced concrete cubes housing banks, hotels, insurance offices and the varied commercial enterprises of a great city. The general plan is the western rectangular grid, but the life lived in the teeming streets is almost entirely Chinese. It is crowded, active, prosperous, materialistic, and offers a fantastic contrast to the gentle scenes depicted in the tinted prints of the engravers who embellished the works of the nineteenth-century historians.

It has been said that the history of Singapore is written mainly in statistics: certainly the impetus which has created a great modern city from the devastated ruins of a mediaeval Malay town laid waste by Sumatran invaders, and left derelict from 1365 until its potential was recognized, rather belatedly, by Stamford Raffles in 1819, has been the vast entrepôt trade attracted by its key position dominating the Straits of Malacca and affording an exchange market and an outlet for the vast natural resources of the East and the manufactured products of the West.

Raffles, whose name lives in the main city square, in college and school, and perhaps most prominently in an internationally known hotel, acquired Singapore, as a *pis aller* when the possibility of securing any of several Sumatran ports disappeared, in an attempt to dominate the straits south of Malacca and thus exercise control over Dutch commercial expansion in the South China Sea. As might have been expected, his choice and his policy met with considerable hostility from his seniors in Malaya, India and London. Nevertheless the island was finally secured outright by purchase from the Sultan of Johore and the incumbent local chieftain in 1824, the purchase being recognized by the Dutch in the Anglo-Dutch treaty of the same year.

The new factory and port flourished from the day of its first occupation. On 1 February 1819, there seem to have been some 150 inhabitants on the island. By 1850 the population had risen to 52,891, thirty years later to 139,208, and to 229,904 at the turn of the century: the discovery by the director of the Botanical Gardens, H. M. Ridley, of the method of tapping rubber which led to its commercial cultivation, and a continuous influx of immigrants from China, moved by civil war and peasant unrest, contributed phenomenally to this growth, and the population now exceeds 1.75 million.

This growth reflects, of course, the commercial development of the island. In the year of final acquisition by purchase (1824), the volume of trade handled amounted to M$11 million. Forty-four years later it had risen to M$59 million, and shortly after the opening of the Suez Canal, in 1872/73, the figure was 90 million. Singapore was founded in 1819 as a free port. It has remained, now the fifth largest port in the world, free, and in 1963 the *per capita* value of its trade was M$4,307, one of the highest in the world:

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[1] A flat open area used for games.

the volume of trade amounted to M$7,754 million, with imports at M$4,279 and exports at M$3,475 million.

The temptation to develop this story is almost irresistible: all the wealth of Ormuz and of Ind is invoked as to and from Singapore came cargoes of edible birds' nests, indigo, and gold dust; rattans, benjamins, brass and copra; tin, rubber, sandalwood, arrack and pepper; cloves and cassia, cinnamon and gambier; beeswax, coffee, nutmegs and betel nuts; opium, raw silk, camphor, pearls and porcelain; elephants' tusks, rhinoceros' horn and tortoise shell.

This commercial symphony, perhaps with more strident atonal cadences following upon the development of the oil resources of the region and the demand for the technological products of the West, still sounds the theme of Singapore's wealth, and of course the basis of the political development it is now necessary to outline. It was acquired for a great trading concern, the British East India Company; administered by them, with Malacca and Penang, as the Straits Settlements Presidency; and when in 1832 this organization was demoted to that of a Residency subordinate to the Presidency of Bengal by a company incredibly blind to longer-term gains, Singapore became the seat of government of the group.

The company continued parsimonious in defence and opposed to the development of trade with the hinterland, and threatened on two occasions to end the status of Singapore as a free port. Consequently, after the anxieties of the Indian Mutiny, the merchants petitioned for transfer to the direct rule of the Crown, and, when the régime of the new India Office appeared to present little change in policy, control was, after interminable discussions, removed to the Colonial Office. Thus in 1867 the Straits Settlements became a Crown Colony presided over by a Governor with nominated Executive and Legislative Councils. Singapore at this time had a population of some 100,000, of whom more than two-thirds were Chinese and less than 1,000 Europeans.

It was from Singapore that a clamour arose for a reversal of the official policy of non-intervention in the mainland: the establishment of flourishing trading connexions was threatened by internal dissensions and petty wars, and incessant and ugly brawls between associations of Chinese miners. The Colonial Office remained obdurate until 1873, when a change of policy was at last determined, and from Singapore were initiated the series of expeditions, capable of a display of force but in fact largely able to negotiate, which led to the incumbency of the first Residents and the eventual establishment of the original Federate States.[1]

The Governor of the Straits Settlements in Singapore also became High Commissioner for the Federated Malay States and the Borneo Protectorates, and later still the superior of the 'Advisers' to the Unfederated States. (British sovereignty was still limited to the three Straits Settlements and Labuan.)

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[1] See also the profile of Malaysia for an over-all account of the developments which were to follow.

Though the concept may not have been formulated so early, it is difficult not to see in these arrangements, early in the twentieth century, an appreciation of the potential of what, in 1963, became the Federation of Malaysia.

After the First World War it was decided to establish a major naval base at Singapore, and in 1926 a wealthy Chinese leader raised in Legislative Council the issue of federation with the mainland. This move met with no sympathy from the Governor, however, who emphasized the sovereignty of the Malay Sultans. The nearest approach to the idea made by officialdom at this time was the suggestion of a customs union, which raised bitter protests from the free traders of Singapore. Indeed at the time when, in February 1942, Singapore fell to the Japanese, Malaya was in a condition later described as 'a plural society with no corporate soul . . . a glorified commercial undertaking rather than a State'.[1]

With the return of the British, Singapore became a separate Crown Colony divorced from the abortive Malayan Union, partly because of the special problems of the naval base, but probably also in view of the enlarged citizenship rights given to the Chinese in the Union: it was scarsely in line with current policy to add to this situation the predominantly Chinese population of Singapore.

Constitutional advances included the widening of the electorate, and increases in elected representation in the legislature. In 1955 a new constitution was adopted based upon elections in twenty-five constituencies, the Governor being advised by a Council of Ministers: after the subsequent election a Labour Front Government, led by Mr. David Marshall, was formed.

There then followed a series of moves, which it is scarcely necessary to follow in detail, to accelerate progress towards self-government, hampered both by the security requirements of the United Kingdom and by the struggles attending the emergence of clear issues and accepted leaders among the local political parties.

Eventually in April 1957, after a first unsuccessful attempt by Mr. Marshall and an all-party delegation, agreement was reached between the British Government and a second delegation headed by Mr. Lim Yew Hock, Mr. Marshall's successor, to provide, at some date after 1 January 1958, for a self-governing State of Singapore with an elected assembly of 51 members. The British Crown would be represented by a Malayan Head of State, and the British Government by a High Commissioner.

Pending the adoption of his constitution a number of measures relevant to this end included an Education Bill (November 1957) which enabled Chinese schools to function as equal partners with the English and Tamil schools in the system, and a Bill giving legislative recognition to the new Nanyang

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[1] V. Purcell, *Malaya—Communist or Free?* (London, Gollancz, 1954), quoted in *Malaysia: a Summary*, ed. Wang Gungwu, Chapter 9 (Singapore, Moore, 1964).

Chinese University (March 1958). At the instance of the Government of the Federation legislation was also passed, to become effective in January 1959, to provide for the continuance of the University of Malaya (which had been established in 1949 by the amalgamation of Raffles College and the Edward VII College of Medicine) under one vice-chancellor and Central Council, but with two autonomous divisions under principals and senates—one in Singapore, one in Kuala Lumpur, the capital of the Federation.[1]

Elections under the new constitution were held in May 1959, when 43 out of the 51 seats were won by the People's Action Party, headed by Mr. Lee Kuan Yew. Mr. Lim, the negotiator of self-government, leading a new party (the Singapore People's Alliance), secured one seat, his own.

A résumé of the ensuing moves towards complete independence, which Mr. Lee Kuan Yew was well aware depended upon a merger with a larger unit, has been set out elsewhere in this volume.[2] When the Prime Minister of Malaya indicated, at a press luncheon in Singapore, that he was prepared to consider integration with the Borneo territories and Singapore, Mr. Lee Kuan Yew responded with alacrity, and it soon became known that Singapore's terms would include autonomy in education (partly a racial question) and in labour policy (a key to industrial development). Final negotiations included the transformation of a proposed contribution of M$50 million from Singapore for development in Borneo to a loan of M$150 million on the understanding that 50 per cent of the labour and materials on projects financed from the loan would come from Singapore. The agreement was finally signed on 8 July 1963, and on 16 September Singapore (and Sabah and Sarawak) proclaimed their independence: on the following day the three new States were admitted to Malaysia.

A little less than two years later, in June 1965, in his last speech in the Malaysian Parliament, after the Speech from the Throne had sparked off a bitter back-bench attack on his party and himself, Mr. Lee Kuan Yew said: 'We are fervently of the opinion that if we give and take and accommodate, Malaysia can succeed, and there is no other way to make it succeed.'

However, on 8 August the Deputy Prime Minister of Singapore found it necessary to reply to the Prime Minister of the Federation: 'My colleagues and I would prefer that Singapore remain in Malaysia . . . (we) had rejoiced at the reunification of Singapore with Malaya in September 1963. It has come as a blow to us that the peace and security of Malaysia can only be secured by the expulsion of Singapore from Malaysia.'[3] Two days later both Houses of the Federation passed the Constitution and Malaysia (Singapore Amendment) Act, and Singapore was no longer a member of the Federation.

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[1] In 1961 the division at Kuala Lumpur became the entirely independent University of Malaya; see below, p. 436 *et seq.*

[2] See profile of Malaysia, p. 275.

[3] *The Far Eastern Economic Review*, No. 8, Vol. XLIX, 19 August 1965, pp. 350-2. This number of the review contains facsimiles of the final two letters exchanged.

This grievous rupture of a federation, following upon the failures of the Federation of the West Indies and the Central African Federation, suggests that there are grave dangers other than those of a plural society inherent in any federation devised at speed or under pressure. There were, however, a number of factors peculiar to the situation in Malaysia which are not without relevance to the studies in this volume. Among them are the issue of a Malaysian Malaysia or a Malayan Malaysia, involving all the problems of a multiracial society, including questions of the recruitment of the civil service; the position of the Islamic religion; the special rights, under the Constitution, of Malays; the terms of Malaysian citizenship; a sometimes over-zealous approach to the propagation of Malay as the sole national language of the Federation. In the sphere of economics it had not been found easy to reconcile the interests of Singapore as a free-trading entrepôt with the tariff equalization policies of a common market and the tariff wall protecting a number of new Malayan industries. Other factors contributing to the breach would seem to have been the closing down of the Singapore branch of the Bank of China[1] (which was largely responsible for financing most of the middle-range Chinese businessmen) in favour of the Malaysian Bank Negara (National Bank); the failure of Singapore to implement the loan for development in Borneo, agreed at the time of federation, on provocative grounds relating to the possible use of the promised funds; and finally the clash of temperaments between the various leaders concerned.

It is not for this study to attempt to apportion responsibility in this situation, or indeed do more than relate such basic facts and understandings as are common property in the public journals; but it may be proper to regret that so promising a social and political adventure as the Federation, aimed at solving the problems of a multiracial society, and consequently of vital significance to the whole world, should have foundered, even temporarily.

In fact it does not appear that the breach will have any great influence on the organization of education in Singapore, since this had remained an area reserved to the Government of Singapore under the Federal Constitution, though the effect upon the future possible flow of students at the third level from the Borneo States remains to be seen. It is rather in the field of economic policy that uncertainty now lies. It is quite clear that in view of the possible danger to Singapore's entrepôt trade her industrial development will be accelerated, and this will certainly entail an increased pressure upon the resources of the technical branches of the education system. But even this will be an intensification of an existing policy rather than a new orientation.

POPULATION

The population of the island of Singapore in 1819 appears to have been around 150. By 1860 it had risen to 52,891, of whom 53 per cent were

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[1] The People's Republic of China.

TABLE 1. Singapore: population distribution by race and sex, 1963[1]

Ethnic group	Total	Male	Female	Per cent of total
Malays (including Indonesians)	249 200	128 500	120 700	14.0
Chinese	1 334 500	675 000	659 500	75.2
Indians and Pakistanis	146 100	94 600	51 500	8.2
Other races	45 400	24 600	20 800	2.6
All races	1 775 200	922 700	852 500	100.0

Source: *State of Singapore Annual Report, 1963*, p. 78 (Singapore, Government Printing Office, 1965).

1. Mid-year estimates.

Chinese, and by 1880 to 139,208, an increase of 43 per cent during the last decade: at this time 85.8 per cent were Chinese of whom 83.5 per cent were males: of these again half were between the ages of 21 and 45.

The organization, largely from Singapore, of the rubber and tin industries of Malaya, led to a further intensification of the flow of immigrants from China and from India until in 1932 an Aliens Ordinance imposed a quota upon male, but not upon female, immigrants: in the next four years Malaya gained an additional 190,000 women, arriving as deck passengers! Many of them settled down and married in Singapore, and the population began to take on the nature of the settled community of a great port rather than the shifting elements of a tropical version of a Klondyke frontier settlement.

The population and its distribution of race and sex at mid-1963 are shown in Table 1.

The Singapore Development Plan (1961-64), paragraph 1.3, states that 'Singapore's population is rapidly expanding at a rate which is the highest known in the world. The average annual increase between the census years 1947 and 1957 was 4.3 per cent. Of this, 3.6 per cent was due to natural increase and 0.7 per cent was due to migratory surplus.'

Only four years later, the Finance Minister, in his budget speech of 1964, instanced the declining crude birth rate (41.3 per 1,000 in 1958, 33.5 in 1963), to show that 'it is no longer true that population is increasing at the world record rate of 4 per cent or more. The latest estimates show an annual increase of 2.2 per cent, still too high but not as unmanageable as that of a decade ago'.[1]

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[1] Quoted in the *Far Eastern Economic Review, 1965 Yearbook*, p. 210 (Hong Kong, December 1964). The figure of 2.2 per cent excludes additions by immigration. See also note to Table 3 below.

TABLE 2. Singapore: Government and United Nations population projections compared (thousands)

Year	Government (Projection II)	United Nations (Projection 2)
1960	1 602	1 585
1965	1 885	1 865
1970	2 202	2 183
1975	2 569	2 585
1980	2 997	3 074

A decline in the crude birth rate was to be found among all races except the Malays: the figures would seem to attest to the intensity, skilful planning and carefully calculated appeal of the government's measures to promote family planning.

A number of projections of the increase of population are available: the 1961-64 Development Plan contains three projections based upon existing fertility, moderate fertility decline and rapid fertility decline: the intermediate projection shows an annual growth rate of 3.1 per cent.

The United Nations Populations Branch, in Reports III and IV of a study on *The Population of South-East Asia, 1950/80*[1] has also made projections on five alternative assumptions: of these it seems desirable to choose one assuming normal mortality decline and a moderate fertility decline at 1 per cent per annum, the same rate of decline as the intermediate official projection.[2]

The two projections are compared in Table 2.

The government projection is based upon constant mortality, the United Nations projection on a normal mortality decline, but no allowance is made for immigratory increase: estimates of this factor are extremely uncertain, and not of major importance to higher education.

The population is a very young one. The rapid expansion of population after the war led to a situation where in 1962 some 46 per cent of the population were aged under 15. Since in the same year the population aged 60 and over accounted for another 4.4 per cent if full-time students and 'home-workers' are added, only one-third of the population was economically active. A rough comparison with India, the United States and the United Kingdom gives, as against the Singapore figure of 33.3, percentages of 39.5, 39.8 and 46.3. The proportion of the population which must be responsible for economic and social development will be carrying a considerable burden.

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1. New York, United Nations, ST/SOA/Ser.A/30, 1958.
2. A rapid fertility decline of 2 per cent per annum would in fact yield an estimated total population in 1980 of 2,853,000, or 221,000 less than the 3,074,000 of the selected projection.

The following analysis of the school-age population until 1980 is based upon the United Nations projection—census age-groups never lend themselves to educational analysis with their five-year groups—and United Nations projections have been quoted in other studies in this volume.

TABLE 3. Singapore: school-age population projected to 1980 (thousands)

Age-group	1960	1965	1970	1975	1980
7-12	252	324	362	411	488
13-15	89	133	163	183	207
16-17	49	70	103	115	130
18-19	46	61	92	110	124
20-23	92	95	130	194	421

Note. The most recent projections of enrolment in primary schools made by the Ministry of Education take account of the recent decline in the birth rate (see below, on left). The projections for secondary education enrolment over the same five-year period are shown on the right.

Year	*Projected primary enrolment (thousands)*	*Increase/ decrease over previous year*	*Year*	*Projected secondary enrolment (thousands)*	*Increase over previous year*
1966	366	+6.5	1966	138	24.7
1967	372	+6	1967	158	20
1968	372	0	1968	174	16
1969	367	−5	1969	191	17
1970	358	−9	1970	203	12

ECONOMIC BACKGROUND

The fifth largest port in the world, Singapore owes its present prosperity to its geographical position at the cross-roads of Asian commerce, to the full-scale and continuing development of its fine natural harbour, to its maintenance of a free trade policy, and to the skills and enterprise of its commercial community reinforced by a powerful supporting structure of banking and insurance interests.

The entrepôt trade which has been developed through these facilities consists basically of: (a) the export of commodities produced in the region, after grading and processing, to Europe and America; (b) the import and re-export to neighbouring countries of manufactured products from further abroad; (c) distribution within the region of staples such as rice, dried and salted fish and preserved vegetables.

TABLE 4. Singapore: imports and exports, 1963

Imports		Countries	Exports	
Percentage of total imports	Value (M$ million)		Percentage of total exports	Value (M$ million)
		Malaysia		
17.7	756.7	Malaya	29.1	1 011.1
2.6	113.1	Sarawak	2.8	97.9
0.3	14.2	Sabah	3.4	116.4
20.6	884.0	SUB-TOTAL	35.3	1 225.4
		South-East Asia, excluding Malaysia		
14.5	619.4	Indonesia	7.5	261.3
2.9	122.3	Thailand	2.8	95.8
1.0	43.0	Burma	0.3	10.8
0.8	34.3	Cambodia	0.2	7.4
19.2	819.0	SUB-TOTAL	10.8	375.3
39.8	**1 703.0**	**Regional sub-total**	**46.1**	**1 600.7**
		Distant countries		
10.0	427.2	United Kingdom	5.8	202.9
9.5	407.9	Japan	3.9	136.7
5.3	225.9	U.S.A.	6.7	231.8
3.6	152.7	Australia	2.5	86.7
2.6	112.0	West Germany	2.0	70.3
2.9	122.4	Hong Kong	2.6	90.4
1.9	82.6	Netherlands	1.6	54.0
4.9	211.7	China (People's Republic)	0.5	16.3
0.7	30.6	France	1.8	61.7
2.6	112.5	India	1.0	36.4
0.9	38.6	Italy	2.0	70.9
0.3	14.6	U.S.S.R.	4.5	154.9
0.3	11.9	New Zealand	1.0	36.4
0.1	2.5	Israel	0.2	7.7
0.1	3.4	U.A.R.	0.3	8.8
0.1	4.5	Ceylon	0.6	20.5
1.1	47.1	Republic of China	0.2	7.5
0.6	23.4	South Africa	0.9	32.3
12.7	543.6	Others	15.8	548.4
60.2	**2 575.1**	**Sub-total**	**53.9**	**1 874.6**
100.0	**4 278.1**	**Grand total**	**100.0**	**3 475.3**

Source: the table is taken from page 165 of the *Singapore Annual Report* for 1963, but the figures have been regrouped to show trade within Malaysia, trade within the rest of the region, and trade with more distant countries. The totals have also been adjusted to tally with the sum of the individual items.

TABLE 5. Singapore: main commodities of entrepôt trade, 1963

Import value (M$ million)	Commodity	Export value (M$ million)
170.8	Rice	88.2
75.5	Sugar	41.0
51.5	Pepper	59.2
815.1	Rubber	972.2
584.0	Petroleum	432.0
214.8	Textiles	123.2
70.0	Motor cars (new)	41.4
51.5	Cotton underwear	14.0
1 870.4	Others	1 362.9

Table 4 shows the relative volume and value of this trade in 1963. The main commodities valued at over M$50 million thus handled were as shown in Table 5.

Table 5 bears little resemblance to the exotic list of commodities lending, for the moment, an air of romance to page 399: possibly many of these may be concealed by that useful item 'others', which at any rate by its size offers some testimony to the variety of the goods which, taken individually, account for less than 0.1 per cent of the volume of trade. Nevertheless the more prosaic wares of Masefield's coaster[1] find an echo in rubber and petroleum, rice and textiles, motor cars (new), and cotton underwear.

Trade within the region,[2] including Malaysia, accounts for a little less than half the total volume of traffic involved, and Malaya is by far the largest partner in this trade. Before 'confrontation' Indonesia held the next place, but in the last three months of 1963 trade was reduced to barter traffic, and even this was cut off in August 1964: since then, for strategic reasons, no figures have been published. It is clear that although the effects of Indonesian policy may have been cushioned by various unauthorized procedures such as the rerouting of vessels subsequent to their departure from Indonesian ports, or an interim transhipment of cargo, it must have had considerable initial repercussions on Singapore's economy (and incidentally, upon that of Penang also).[3]

In 1957 the number of persons occupied in the entrepôt trade was 71,382 out of an economically active population of 471,918—over 15 per cent. Certainly the importance of this function cannot be overestimated, and up to

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1. The reference is to John Masefield's 'Cargoes', in *Collected Poems*, revised edition, p. 906.
2. The traffic of Viet-Nam and Laos is handled principally by Saigon.
3. Nevertheless it appears that the actual volume of trade in 1965 was in fact greater than in pre-confrontation days.

the present, with the exception of the decline caused by 'confrontation', there has been no significant variation in the volume of trade save a steady increase subject to mild political or market alarums. There are, however, other factors which it is difficult to assess at the moment, but which it would be equally rash to ignore, which seem to indicate that the entrepôt trade, though every effort must be made to sustain and develop it, is not likely to be subject to any further considerable degree of expansion.

The main problem is, of course, the effect that the policy of industrialization now being pursued by all the developing countries of the region will have upon Singapore's future trading activities. It can be argued that an access of imports of capital goods required to set up industrial plants into the region is likely to take advantage of Singapore's facilities as a clearing house and as an economical centre for the storage and subsequent distribution of components and spare parts. On the other hand there appears to be a strong tendency on the part of governments to rely more and more upon direct shipments, to replace, where possible, imports with locally manufactured items, and to undertake a growing share of the grading and processing of their own products.

Singapore has for long now been aware of this situation; particular attention was drawn to it in the first Five-Year Plan, and a number of measures taken to implement the development of a complementary or alternative source of wealth—industrialization.

Industrialization is essential to the economy not only as an activity which can be heightened in the event of a falling-off of entrepôt traffic, but also as a policy to absorb the increasing numbers of students graduating from the universities, the Polytechnic and the schools: this absorption of a growing population (though, as has been shown, attempts to limit the increase of population have met with remarkable success) is a particularly acute problem in the present isolation of Singapore.

If the entrepôt trade in 1957 employed 71,382 persons, the comparable figure for industry was almost as great, 66,754, engaged at that time mainly in food-stuff preparation; garments and footwear; wood products; paper products and printing; and general, electrical and electronic engineering. The gross output of these industries was estimated at M$42 million, the contribution to GNP in 1961 had reached about 14 per cent, and half the output was exported.

The expansion of these activities called for the cultivation of external markets, the attraction of capital by treating new enterprises as pioneer activities with preferential treatment in regard to loan terms and taxation exemption, and a competent infrastructure of services, particularly of power and transport. Finally, and from the point of view of this study most important, was the growing need for an increased output of technicians and technologists, and the consequential administrators and clerical personnel, as well, at all echelons, as the development of the skills and enterprise of the potential entrepreneur—a not unreasonable demand from education in a largely Chinese community.

THE FIRST DEVELOPMENT PLAN, 1960-64

The First Development Plan, covering the years 1960-64, introduced a 'crash programme' of industrial development, and 58 per cent of development expenditure was allocated to economic development as compared with 40 to the social services, the small balance being devoted to public administration, which in fact largely meant the development of the Police Force.

It could well be argued in a doctrinaire study that industrial development was basically dependent upon education, health services and housing, and that the dichotomy stressed in the plan was scarcely realistic: in fact the separation is administratively useful, and needs to be forgotten only in the first stages of allocation of funds, and if subsequent cuts have to be made.

The economic share of M$508 million was divided between industry and commerce (66 per cent), communications and transport (23 per cent) and agricultural development—largely an infrastructure of services—(10.1 per cent).

It was estimated that the plan would create 40,000 new jobs, 8,000 in the public service, 12,000 in construction programmes (not necessarily a permanent increase) and 20,000 as a result of normal growth. Against this had to be set the number of chronic unemployed, 31,000, plus an addition to the labour force by 1964 of 52,600 workers: a total pool of 83,600, giving an unemployed surplus of 43,600. It was therefore essential to include in the plan measures to attract private investment into industries that would absorb the surplus labour stock: it was estimated that the total capital investment required would be of the order of M$600 million, together with a buoyant revenue, the maintenance of which depended on factors largely beyond the control of Singapore.

The major steps proposed were: (a) the replacement of a small Industrial Promotion Board by an Economic Development Board with a capital of M$100 million, able to grant industrial loans, subscribe to the share capital of private industries and plan and undertake industrial projects; (b) the provision of industrial sites including the setting up of an iron and steel plant on a new industrial site at Jurong, some ten miles south-west of the city centre, the whole complex of which would include tidal wharves giving sea access, the iron and steel plant and other heavy industries, a residential and shopping area and a green belt.[1]

In the field of social development, in which Singapore has already set a high standard (as might be expected from its comparative prosperity as a city with a *per capita* income in 1963 of M$1,498), a capital expenditure of about

[1] The Chinese Nanyang University is already established on the hills above Jurong.

M$350 million was estimated for projects likely by 1964 to involve an increase in recurrent expenditure of M$76 million.

The main areas of this programme are those of health, housing and education.

Housing

Housing developments are always spectacular, sometimes pleasingly so. Even more than a new school, groups of blocks of flats or a housing estate offer tangible evidence that something has been accomplished. This is certainly true of Singapore, and the arriving traveller, whether by air, sea, road or rail cannot fail to observe the rows of white rectangular housing blocks silhouetted against the skyline and probing deeply into the island interior. The effect is less spectacular than that to be observed when approaching Hong Kong, because it is less concentrated, but for that reason it is possibly more pleasing and certainly more hygienic. The plan provided for 51,000 units in four years; in fact, 67,364 had been completed by 31 December 1964.

Health

Major projects included improvements to a number of existing hospitals, a new general hospital of 400 beds, seventeen public dispensaries, two new maternity homes and a wide range of ancillary services.

Education

Ninety-four million Malaysian dollars were provided for education, of which over half was earmarked for a steady programme of primary, secondary and technical school construction. The remainder of the programme embraced all aspects of the system, from a new headquarters for the Department of Education to grants-in-aid, extensions to the Teachers' Training College, a contribution to the University of Singapore, and, perhaps the most important and most impressive single item, the development of Singapore Polytechnic, including additional laboratory and workshop provisions, the expansion of courses in chemical engineering, the establishment of a teaching foundry, new courses in printing, and the setting up of an Industrial Research Unit and a scheme for devising aptitude tests in technical education.

It is not difficult to see in this programme the contribution expected from education towards industrial development. It is, however, perhaps a little unexpected to find provision being made in advance, rather than when the lack of it has become distressingly obvious.

The progress of the plan was reviewed and evaluated at the end of 1963 after three years' experience,[1] by an Economic Planning Unit originally located in the Ministry of Finance, transferred to the Prime Minister's Office, moved to the Ministry of Development and Justice (a combination of functions the significance of which is not immediately apparent) and finally restored to its original home in the Treasury.

It appeared that excellent progress had been made including, not always as easy as it might appear, the consumption of 75 per cent of the available funds. Pioneer certificates[2] had been granted to 113 firms with an authorized capital of M$650 million and plans to produce 255 commodities. The Industrial Estate at Jurong was well under way, with National Iron and Steel Mills Limited already in production, and sites had been allotted to another fifty-three enterprises, including a major oil refinery (the first of four now in operation or planned in Singapore or its small island outposts), acid works and other chemical plants, a tyre factory, a textile mill, and a plywood and veneer plant.

In the field of education it was felt that the facilities for technical education would still need considerable expansion to provide an adequate reservoir of manpower for the new industries now being so successfully generated.

During the first three years of the plan, national income rose by 9.3 per cent annually and the *per capita* income increased by M$262, or 6.6 per cent each year, to reach M$1,498.

It was at this stage that planning began for the First Malaysian Development Plan, 1965-70, a consequence of the establishment of the Federation of Malaysia which brought to Singapore not only the promise of a common market, and therefore the hope of a wide development of trading, but also the problems involved in what might be the opposing policies of the free trading of the ports of Singapore and Penang and the technique of protecting the young industries of Malaya by the erection of protective tariff barriers, a possible clash of interests which had already made itself felt internally in Singapore with the advent of a determined policy of industrialization.[3]

The economic problems posed by the creation of Malaysia had, of course, been foreseen, and the Governments of Malaya and Singapore requested the assistance, late in 1962, of the International Bank for Reconstruction and Development, which organized a mission for the purpose under the chairmanship of Mr. Jacques Rueff. The report of the mission[4] is dealt with more fully in the country profile of Malaysia but it may be noted here that, largely on its recommendations, agreement was reached between Malaya and Singapore during the final negotiations leading to federation when provision was made for the general implementation of a common market throughout the Federation over the next twelve years, with the establishment of a Tariff Board to recommend what early protective duties on new Malaysian manufactures would be needed during the first five years of federation, a delaying clause enabling Singapore to postpone such action in any particular case, if it so chose, for a further twelve months.

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[1] *First Development Plan, 1961-64; Review of Progress for the Three Years ending 31 December 1963* (Singapore, Government Printer, 1964).

[2] Allowing a five-year 'holiday' from income tax.

[3] Lim Tay Boh, *The Development of Singapore's Economy* (Singapore, Eastern Universities Press, Ltd., 1960). Dr. Lim Tay Boh, now vice-chancellor, at the time of the publication of this collection of papers was professor of economics at the University of Malaya, Singapore.

[4] *Report on the Economic Aspects of Malaysia* (Kuala Lumpur, Government Printer, 1963).

The development of the machinery for implementing a common market policy was one of the major activities occupying Kuala Lumpur and Singapore during the first two years of federation. Now separation has once more brought joint planning to an end, and planning in Singapore has been re-oriented to produce, not an integral element of an over-all plan, but a Second Development Plan for Singapore alone.[1] In the meantime the two governments, after a short period of mutual suspicion, have again begun to suggest *pourparlers* to re-explore their mutual interests in the fields of commerce and industry.

THE EDUCATIONAL SYSTEM

GROWTH OF THE SYSTEM

Sir Stamford Raffles, the founder of modern Singapore, in a minute written shortly before he left the island, declared that: '... education must keep pace with commerce in order that its benefits may be assured and its evils avoided. ... Shall we not consider it one of our first duties to afford the means of education to surrounding countries and thus render our stations not only the seats of commerce but of literature and the arts?'[2]

The institute which Raffles planned was to have one European superintendent with an assistant and three Asian professors, each with an assistant, 'to teach Malay, Bugies and Siamese, with extra teachers in Chinese, Javan, Burman and Pali'. A number of the professors would doubtless, added Raffles, also be competent in Arabic. The institute was indeed started in 1837

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1. The plan is likely to be published in March 1966. However, it has been possible to make reference to the major educational provisions of the plan in later sections of this profile, in part by quotations from a policy statement made by the Minister of Education at the November 1965 Conference of Asian Ministers of Education in Bangkok, but more particularly through the co-operation of the Ministry of Education in making available to the study advance details of the educational content of the plan.
2. The great minute from which this extract is quoted is printed in full in the original edition of Lady Sophia Raffles' *Memoir of the Life and Public Services of Sir Thomas Raffles: F.R.S., etc.* (London, 1830). It is extensively quoted in the more accessible *Raffles of the Eastern Isles*, Wurtzburg, ed. Witting (London, Hodder and Stoughton, 1954).

as the Singapore Free School: its career was chequered and its endowment wasted,[1] but in 1909 it was reconstituted into what is now one of the best reputed of the secondary schools of Singapore.

However, the centenary of the foundation of the city was fittingly celebrated by the inauguration of a scheme for the establishment, by public subscription and government grant, of a memorial 'Raffles College' which was to be the nucleus of a future university, a hope which was ultimately realized.

The generous vision of Raffles, unfortunately, was not vouchsafed to his successors, and for the next fifty years mission schools were opened and closed sporadically in Singapore, a few being subsidized from time to time by government. It was not until the Colonial Office assumed charge of Singapore in 1867 that measures to promote education were seriously undertaken. An Inspector of Schools was appointed in 1872, and in 1901 the post was converted into that of Director of Public Instruction for the Straits Settlements, assistants being stationed in Malacca and Penang. In 1906 the same officer became Director of Education for the Settlements, and subsequently also Adviser on Education to the Federated Malay States. An Education Board was constituted for the Settlements in 1909, reconstituted for Singapore after the reorganization of government following the close of the Second World War, and re-established under the Singapore Education Ordinance, 1957, when it became a purely advisory body to the new Ministry of Education, which was given full competence in policy and financial matters.

The Ministry is organized, like the Malaysian Ministry, on the usual pattern bequeathed by a retiring British colonial administration to a newly independent government: a Minister, in Singapore assisted by a Minister of State, is in charge of a department in which control and administration are headed by a permanent secretary who is also the director of education. There are three assistant directors for technical, Malay and Chinese education. The present incumbents of these three posts have all risen from the professional and not the administrative service. Then follows the usual hierarchy of the inspectorate headed by a chief inspector, a chief examinations officer and an adviser on textbooks and syllabuses.

It can, and frequently has been, argued, that the dispassionate advice of the administrator is to be preferred to that of the emotionally involved educationist, since the former is in a better position to assess over-all situations. The reverse is the case in Singapore, and at least some of the many changing elements of the remarkably progressive education system testify perhaps more to professional enthusiasm than administrative poise.

Policy since 1956 has been largely concerned with securing equal treatment for the four types of school providing instruction in Malay, English, Chinese and Tamil, with the introduction of a second language in all primary schools and a third in all secondary schools, and with increased attention to the teaching of science and mathematics and the development of vocational education to meet the needs of an industrial society.

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[1] A charming account of the institute's vicissitudes may be found in pages 1 and 21-5 of the *Annual Report of the Department of Education* for 1950, which states that 'about 1827, thieves and pirates used the school as a regular rendezvous. More respectable people have used the building almost throughout its existence . . . the Director of Education had his office in the school until 1926'.

A number of important inquiries have been conducted during the last five years, a Commission of Inquiry into Vocational and Technical Education, reporting in 1961; a Commission of Inquiry into Education (other than technical education) reporting in 1964; committees reviewing the constitution, organization and curriculum of Nanyang University, a Commission of Inquiry into the University of Malaya, and several reviews of technological education.

Primary education of six years' duration from the age of 6 or 7 is provided in five types of school classified according to the language of instruction, i.e., Malay, Chinese, English, Tamil and 'Integrated', in which two language streams are maintained, the pupils participating jointly in extra-curricular activities. The 483 primary schools in 1964 were almost all government-maintained or aided; of 61 registered private schools, 44 were kindergartens. All schools are further classified as urban or rural. In 1963 only 4 per cent of the pupils paid nominal fees, education for the first six years being provided free for all children born in Singapore, children of Singapore citizens resident in Singapore, or children born in Malaya whose parents are residents of Singapore.

Admission to second-level education is controlled by the results of the primary schools leaving examination, taken at the end of the sixth year of the primary course. Successful candidates—some 60 per cent—are channelled to academic, technical or commercial[1] schools. At a lower level, an entrance examination admits to a number of vocational schools. For the remainder, children who are under 14 may repeat the last year of the primary course, pupils over 16 are superannuated.

The basic secondary course is of four years' duration with a terminal examination the character of which is determined by the type of school (see below, pp. 423-6). Those in the English and Chinese streams who secure good passes are admitted to advanced courses of a further two years' duration leading to a Higher Certificate examination which qualifies the holder, *inter alia*, for university admission.

At the third level, academic education is provided by the University of Singapore, Nanyang University (a private Chinese university supported by government), and Ngee Ann, a private liberal arts college. Technical and technological education is given by the Singapore Polytechnic, which is in 1966 conducting both technicians' courses and advanced courses which are now recognized for the award of a degree of the University of Singapore until such time as the Polytechnic becomes a technological university.

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[1] There is at present only one commercial school.

TABLE 6. Singapore: enrolment in primary and secondary schools, 1956/57 to 1962/63

Level or type of school	Enrolment		Net increase	Increase per cent
	1956/57	1962/63		
Primary grades 1-6	222 612	341 620	119 008	53.5
Secondary grades 7-13	37 385	81 245	43 860	117.3
Technical grades 7-10	681	2 463	1 782	261.7
Vocational grades 7-9	447	717	270	60.4
TOTAL	261 125	426 045	164 920	63.2

Teachers are trained at the Teachers' Training College at a variety of levels, courses ranging from in-service courses for graduate teachers in secondary schools to specialist courses for teachers of commercial subjects, dressmaking and music. Special courses are also given for teachers in Malay, and those teaching technical education in Chinese.

A wide variety of adult classes is provided by a quasi-government statutory body, the Adult Education Board, from language and literacy classes in English and Chinese to a variety of vocational courses, from Higher School Certificate tuition to cultural activities such as orchid cultivation or stage production. Recently a series of carefully planned radio courses were given on the economics of Malaya, on an introduction to sociology, and on the concept of democracy.

Table 6 gives an indication of the growth of the educational system at the first two levels between 1957 and 1963.

It will be seen that in six years the school enrolment at the first two levels has increased by 62 per cent, that the largest absolute increase is, naturally, in primary education, but that the most significant proportional increase is in general secondary education, where the numbers have more than doubled, an increase of nearly 44,000. The proportionate increase is of course greatest in technical education, but the numbers involved are still small—too small to provide adequate support either for industry or for the strengthening of third-level technical and technological education.

PRIMARY EDUCATION

By 1965[1] Singapore had more than 480,000 children in school, of whom 360,000 were at the primary stage, more than 20 per cent of the total population. For these children there were 12,400 teachers, a ratio of 29 : 1. (The

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[1] Information in respect of 1965 is based upon a statement made by the Minister of Education, and a supporting paper, during the Conference of Asian Ministers of Education at Bangkok in November 1965.

TABLE 7. Singapore: primary schools, 1963; enrolments by type of school and pupil/teacher ratios

Type of school	Number	Teachers	Pupils	Pupil/ teacher ratio
Government:				
Integrated	20	907	26 990	29.8
English	113	4 211	128 386	30.5
Chinese	7	271	7 591	28.0
Malay	43	816	23 040	28.2
Tamil	2	8	163	20.4
Aided[1]				
English	22	672	22 486	33.5
Chinese	203	3 561	103 329	29.0
Tamil	12	41	1 104	26.9
All-age schools (primary):				
English	19	623	20 984	33.7
Chinese	14			
Tamil	1			
Registered private schools:[2]				
English	30	154	3 660	23.8
Chinese	31	136	3 887	28.6
TOTALS	517	11 400	341 620	30.0

[1] Aided schools, managed by voluntary bodies such as missions or communities, receive an annual grant equivalent to their recurrent expenditure and, should they expand, a grant of 50 per cent of new capital expenditure.

[2] This total includes 22 pre-primary kindergartens.

ratio has not changed for some years, which means that at least the supply of teachers is keeping pace with the growing school population.) The recurrent cost of primary education per pupil was M$162, and building costs M$198 per place. There has been an accelerated building programme since 1963, and it is estimated that there is now a school place for every child who needs one. Primary education is not compulsory, since the universal demand for education is considered to make such a measure unnecessary. It is certainly true that where the absentee minority is in the region of 5 per cent or less of the population of school age, the difficulty of enforcing sanctions and the expense of maintaining an attendance service may well render legislative action ineffectual and over-expensive. Such a conclusion, however, would be more assuring if it were based, not upon enrolment figures, but upon figures of average attendance, a criterion which is seldom revealed by education authorities.

For a fuller statistical background it is necessary to revert to 1963. Table 7 shows the number of each type of primary school, the number of teachers, and the total enrolment, together with the pupil/teacher ratio.

The over-all pupil/teacher ratio of 29.7 : 1 appears a remarkable achievement, but it must be appreciated that of the 11,400 teachers in primary schools and departments only 4,924 were trained, 3,913 were undergoing in-service training, whilst 2,563 remained untrained. The strain on teachers of in-service training presents problems both of organization and of the effectiveness of teaching: great numbers of children enrolled can still only be accommodated by the almost universal adoption of double sessions. In 1962 these were in operation in 89.5 per cent of urban schools and 77.7 per cent of rural schools. Double staffs are employed, teachers in training reporting for instruction during the session, morning or afternoon, when they are not teaching. A major research study into the effect of this organization of education on pupils and teachers would be of value both to Singapore and to educational research in general. However it appears that the system of in-service training, introduced in 1960 to meet the needs of rapid expansion, is to be gradually replaced with full-time pre-service training from 1966 onwards.

Until 1959 a policy of automatic promotion was in force in the primary system. This had been adopted to provide a mechanical clearance of places for each new intake, but it did not find favour with the teachers. A compromise system is now employed by which promotion is based upon an annual examination, but the number of failures, and thus retentions, may not exceed 10 per cent of the class enrolment.

The policy was closely examined by the 1963 Commission, who appreciated the flexibility of the system, but doubted the efficacy of retention as a remedial measure. It was recommended that the first three years of schooling should be treated as a block with only one opportunity for retention, and that the criteria of promotion should include teachers' assessments as well as examination results.

The most vulnerable feature of the whole complex system of language schools seems to be the small Tamil stream, for which it has been most difficult to obtain trained teachers. These schools (see Table 7) are largely aided, and it is interesting to note that, as was the case earlier with many Chinese school committees, despite the advantages that would accrue to the schools there is no great anxiety to relinquish control, and possibly weaken the structure of the Tamil community, by handing over all responsibility to government.

TABLE 8. Singapore: primary school leaving examination results, 1960-63

Medium	1960			1961			1962		
	Sat	Passed	Percentage	Sat	Passed	Percentage	Sat	Passed	Percentage
English	18 585	6 290	33.8	23 116	10 187	44.1	26 116	12 418	47.6
Chinese	8 366	5 695	68.1	12 557	8 534	68.0	14 131	9 646	68.3
Malay	3 576	1 692	47.3	2 797	1 656	59.1	2 567	1 572	61.2
Tamil	124	71	57.3	74	45	60.8	100	63	63.0
TOTAL	30 651	13 748	44.9	38 544	20 422	53.0	42 914	23 699	55.2

TABLE 9. Singapore: distribution of successful candidates in the primary school leaving examination, 1963

Stream	Academic schools	Technical schools	Commercial school
English	14 117	878	500
Chinese	9 874	437	—
Malay	1 693	—	—
Tamil	84	—	—
TOTAL	25 768	1 315	500
Percentage	93.4	4.8	1.8

SECONDARY EDUCATION: GENERAL, VOCATIONAL AND TECHNICAL

Entrance to post-primary education at the second level is through the primary school leaving examination, conducted since 1959 in all four languages of instruction.

Table 8 shows the results of this examination for the ensuing three years, and the relative percentage of success in the four language streams.

It appears that a general pass percentage of 66 per cent is the target of the examination[1] and therefore some indication of the proportion of primary school leavers to be catered for by the secondary school system, though it must be appreciated that the numbers actually sitting for the examination each year are appreciably lower than those originally entered. The lower percentages of passes in the English stream[2] are attributed to the premature promotion of candidates qualified only by age for admission to primary class VI, but thus entitled to sit. It would surely be equally reasonable to attribute a relatively high proportion of failures to the difficulties of instruction in a language which, though current, is not the mother tongue of the majority of the pupils.

A certain economy in the design of the Ministry's annual reports, which entails only a sporadic appearance of data of less general interest, makes it difficult to assess trends. However, in 1960, of the 55 per cent (16,903 pupils) who failed the examination, 10 per cent of the total entry were posted to pre-secondary 'remove' classes, 26 per cent, being under 14, were allowed to repeat the last year of the primary course, 18 per cent entered the two-year

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[1] 'The results of the Chinese stream at 68 per cent for 1960 was a fairer indication of what schools were normally expected to produce without the automatic promotion system'—*Ministry of Education Annual Report, 1960*, para. 24.

[2] The term 'stream', normally used throughout this study to indicate divisions within a grade, is, in the Singapore profile only, applied, following local custom, to the four language groups into which the schools are divided.

TABLE 10. Singapore: growth of secondary education, 1957-63

(1) Year	(2) Post-primary I and II	(3) General secondary	(4) Pre-university	(5) Vocational	(6) Technical	(7) Total
1957	—	32 598	3 659	447	681	37 385
1958	—	36 385	4 294	522	1 107	42 308
1959	—	43 422	4 606	695[1]		48 723
1960	4 976	48 077	4 934	——1 257[2] ——		59 244
1961	6 401	61 078	5 400	——1 379[2] ——		74 258
1962	4 059	60 976	3 896	——3 377[2] ——		72 308
1963	4 282	71 566	5 397	717	2 463	84 425

1. Three secondary technical schools were temporarily being run as general secondary schools.
2. Combined figure for technical and vocational schools.

post-primary course (steadily taking on a more vocational character),[1] whilst 1 per cent were superannuated. There can be little doubt as to the anxiety of the Ministry to extend educational facilities to cover as large a section of the school-age population as possible.

A breakdown of the results a year later, in 1963, shows that of the 27,583 successful candidates, 93 per cent entered academic secondary schools giving a general education: the full picture is given in Table 9.

The composite Table 10 shows the tremendous growth of enrolment between 1957 and 1963 in:

Column 2: post-primary courses, started in 1960, for pupils who have not qualified for admission to a full secondary school (see footnote 1).

Column 3: general education of the grammar-school type: four-year course.

Column 4: a two-year continuation of the general secondary course (column 3) in sixth forms as, *inter alia*, a preparation for university entrance.

Columns 5 and 6: where the data permit, column 5 shows the enrolment in trade courses: building construction, mechanical and electrical engineering, carpentry and cabinet-making, rattan work, commercial work and home economics. Most courses are of two years' duration. Column 6 gives the enrolment in two technical and one commercial secondary school.

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[1] In January these courses were developed into a secondary vocational course of two years' duration carried out in specially designed schools known as vocational secondary schools. In fact, the vocational content occupies only some 20 per cent of the total curriculum time, and in the case of girls appears to be limited to a rather formal domestic science course, and some craft work. On the other hand the woodwork and metal workshops appear to be lavishly equipped for the nature of the work which can be effectively taught. There seems to be no direct channel into employment for pupils leaving these schools and doubtless, though they extend the shelter of the educational umbrella to where it is sorely needed, their purpose and scope will be subject to review.

In the two former, woodwork, metal work and mechanical drawing have been added to a general curriculum, and students are able to sit for the GCE examination taken by all secondary schools. Data are only available in combined form for the years 1960-62. Full-time teacher training was abandoned in 1959 when it was reorganized on a part-time basis; it is therefore treated separately (see below, pp. 426-9).

It will be observed that the provision for post-primary education has been more than doubled in the last seven years, the most significant growth being in the four-year general course, with a consequential increase in the pre-university classes which complete a six-year academic course. The cumulative increase in the numbers enrolled in post-primary schools over the seven years is 119.5 per cent. Enrolments in vocational and technical schools have trebled, but in student terms this indicates a gain of 2,052, whereas general secondary school enrolments have increased by 38,968. Thus in 1963 of all school pupils following a post-secondary course only 4 per cent were undergoing any form of technical or vocational education. The percentage would only increase by 8 per cent to a total of 12 per cent were the two-year post-primary courses given a more specifically vocational content which might be considered premature in view of the low academic standing of the pupils concerned.

Indeed, in Chapter 10 of Volume I of this study (the main report) a case is stated with some emphasis for the postponement of specific technical training until after four years of general education: the corollary of such a policy is of course a diversified concept of the content and conduct of general education particularly during the last two secondary years.

Such a policy would appear to be welcome to the Minister, who in a statement to the Conference of Asian Ministers of Education in Bangkok in November 1965, said:

'To integrate the educational structure with the requirements of industrialization, the Second Plan includes a new feature in Singapore's educational system, namely, the incorporation of workshop facilities into the secondary educational structure and the consequent ending of the separation of schools into academic, technical and vocational units. In fact, all secondary schools in the Second Development Plan 1966-70 will have workshops. Partly to help the students and partly to overcome the traditional prejudice against technical and vocational education in favour of academic education, a vocational guidance plan will be introduced. The system is designed to channelize the primary school leavers and to maintain, simultaneously, some degree of flexibility by allowing for some interchangeability in respect of mental and physical development.

'Singapore has a vocational institute, the enrolment capacity of which will be increased from 1,200 to 2,500 by 1966. This institution provides three types of vocational training: (a) a two-year full-time course for secondary and vocational school leavers in the age-group 15-18; (b) a three-year part-time course for those above this age-group; and (c) a two-year part-time advanced training course for those who have already had their basic craft training.'

This policy is presumably a development from the present situation, which is described in a progress report presented to the same conference (Unesco/Edecas/6, p. 1): '... one of the main educational projects under the First Development Plan was the provision of at least two years of post-primary education in secondary vocational schools for those who have completed at least six years of primary education and are over the age of 14 but who have not shown any academic bias[1] in the primary school leaving examination.... There are now nine secondary vocational schools with workshops providing a two-year vocational education for a possible total enrolment of 18,000 pupils. Secondary vocational enrolment has increased by 79 per cent from 4,800 in 1964 (2,463 in 1963) to 8,600 in 1965. One of the main problems in developing vocational education is the failure of parents to realize the need for, and the advantage of, vocational training for their children who have not done well enough in the primary school leaving examination to qualify for academic or technical education. The need to popularize vocational education is very real in Singapore which has already embarked on industrialization. The two-year vocational education course provides 50 per cent general education and 50 per cent basic vocational education in practical subjects.'

If such a policy implies the integration of these courses in a comprehensive secondary system, there is everything to commend it. If, however, they become merely low-level trade courses, the policy will militate against the present possibility of transfer to full secondary education for late developers, and also tend to preserve the almost universal fallacy that the less academically gifted are *ipso facto* the appropriate material for industrial training.

Of secondary technical schools, the progress report states:

'Secondary technical education has been consolidated with the introduction of new syllabuses in a wider range of practical subjects. Secondary technical schools admit students who have passed the primary school leaving examination and whose parents have opted for technical education. These schools provide four years of secondary education with a technical bias leading to the School Certificate examination and a further two years of pre-university education leading to the Higher School Certificate examination for those who have shown promise of benefiting from further education at university level.

'Tremendous progress has been achieved in this direction during the period 1963-65. Enrolment figures indicate that parents are becoming increasingly aware of the importance of vocational and technical education to meet the requirements of skilled manpower generated by Singapore's industrialization programme.

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[1] This would appear to be a masterly euphemism for 'who have failed'.

'Enrolment in secondary technical schools has increased by 85 per cent from 2,500 in 1963 to 4,600 in 1965. There are now nine secondary technical schools in Singapore with a total enrolment capacity for 18,000.'

Certainly the prospects of a high-quality field of recruitment for technical education at the third level at the Singapore Polytechnic should be greatly enhanced, but it may perhaps be suggested that a possible sequence for future policy would be the step suggested by the Minister's speech: the complete fusion of identity between academic and technical secondary schools and then the integration within this system of the vocational courses, which might surely leave their specific craft content to on-the-job training, and deal, during four years of secondary education, with the general principles and skills of technical work. Such a system, while ultimately moving toward universal secondary education—a goal not ultimately beyond Singapore's capacity—can still be established on the selective basis of the present system.

SECONDARY BOARDING SCHOOL

The Second Five-Year Plan proposes to establish, at Jurong, a secondary school for all races, at which half the pupils will be boarders, which will be planned 'to create suitable conditions conducive to achieving optimum development of potentialities in the more able and promising children'. This proposal to make special provision for exceptionally gifted children is a considered measure in the educational aspect of the development of the human resources of the State.

SECONDARY SCHOOL EXAMINATIONS

As will be imagined, the four-language stream organization of secondary education is reflected in the complexity of the external examination system. At the conclusion of the four-year general and technical secondary courses, pupils in the English stream sit for the Cambridge Overseas School Certificate examination; pupils in the Chinese stream for the Secondary IV examination conducted by the Ministry of Education; pupils in the Malay stream for the Federation of Malaya Certificate of Education, conducted jointly by the Cambridge Local Examinations Syndicate and the Ministry of Education of Malaysia;[1] and candidates in the Tamil stream for a Tamil Secondary IV examination. The same examinations are also taken by a considerable number of students enrolled in adult classes (see below, pp. 431-3), by a few private schools recognized by the examining authorities for this purpose, and by individual candidates.

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[1] At least until 1965.

At the post-certificate (pre-university) stage the teaching media are confined to English or Chinese: students who do well in the Malay Certificate examination are being admitted to these courses; similar arrangements are envisaged for Tamil students. The examinations at the end of these two-year courses are, for English-language students, the Cambridge Higher School Certificate examination conducted by the Cambridge Examinations Syndicate in co-operation with the Universities of Singapore and Malaya, and for the Chinese stream the Upper Secondary II examination, introduced and conducted by the Ministry of Education in 1963.

Of the full-time school population in 1963, 6,602 sat for the Cambridge School Certificate examination, of whom 3,619, or 54.8 per cent, obtained full certificates. In the joint examination for the Federation of Malaya Certificate of Education and the GCE examination of the Associated Examining Board (the last occasion on which the GCE examination was taken) 6,773 candidates were entered from the schools and 4,262 passed the requirements for one or the other of the two joint examining bodies, 150 candidates reaching standards and combinations of subjects which satisfied both bodies. The single pass percentage was 63. In the School Certificate examination for the Chinese stream 3,873 were entered and 2,762 obtained full certificates, a percentage of 70.1. There were also a few candidates for the examinations in Malay and Tamil. In Malay 210 sat and 41 passed: in Tamil 17 sat and 9 obtained a full certificate.

The Higher School Certificate examination in Chinese, held for the first time in 1963, attracted 1,184 candidates who obtained 274 passes, a percentage of 23.4. The English examination was taken by 850 candidates of whom 550 passed, a percentage of 64.7.

The over-all result of the examinations appears to be that a recognized School Certificate was obtained in 1963 by 10,696 students, or 60 per cent of an entry of 17,475, and a Higher School Certificate by 824 candidates out of an entry of 2,034, a percentage of 40.4. The Higher School passes, together with 72 passes gained by adult education students, making a total of 896, represent the 1963 quota of potential students qualified to enter the University of Singapore. It may be assumed that the percentage of successful candidates will rise considerably as the new Chinese Upper Secondary II examination becomes more familiar to students, teachers—and examiners.

Little useful purpose would be served by a comparison of these results from year to year: the introduction of new examinations, the switching of schools from one examination to another and the inclusion, even if on a small scale at present, of new elements in examinations in Malay and Tamil, would certainly invalidate such comparisons.

However, some indication of the output of the school system may be gained from Tables 11 and 12, which endeavour to trace initial cohorts through the

TABLE 11. Singapore: approximation to the seven-year progress of a primary I cohort, 1957-63

Year	Class	English	Integrated	Chinese	Malay	Indian	Total
1957	Primary I	24 867		29 674	2 461	562	57 564
1958	Primary II	22 437		26 927	2 326	300	51 990
1959	Primary III	22 165		24 798	2 272	276	49 511
1960	Primary IV	19 526		21 502	2 172	189	43 389
1961	Primary V	18 949	482	18 737	2 031	125	40 324
1962	Primary VI[1]	24 457	2 144	14 000	2 457	104	43 162
1963	Post-primary I[2]	2 018	387	698	—	5	3 108
1963	Secondary, first-year	12 727	1 788	9 788	1 484	48	25 835[3]

1. In this sixth year the intake will be swollen by repeaters who failed the primary school leaving examination in 1961, but being under 14, were permitted to repeat the course.
2. In 1963, the 1962 output split into repeaters, post-primary I entrants, and full secondary-course entrants. The total does not include some 1,200 entrants to technical or vocational schools.
3. Of this total 6,285, or 24.3 per cent, were exempt from paying secondary-school fees.

primary and the secondary streams, though the available data does not permit of any adjustment for repeaters, who compensate in some measure for drop-outs during the progress of the course: it may be assumed that such a factor would be fairly constant for all years of output.

Table 11, with the initial enrolment of primary class I as a base, shows the intake for the next six years in the successive grades through which the original entry passed.

From this table, which of course shows the figures for only one such progression, it appears in very rough terms that of an initial entry into the system in 1957 of 57,564 children, 25,835, or 45 per cent, survived in 1963 as entrants to the secondary level, whilst another 3,108 entered a two-year post-primary course. To these should be added an estimated 1,200 entrants to technical and vocational schools, so that whilst the whole primary course of six years was completed by 43,162[1] pupils, or 75 per cent of the original intake, 30,143 of the original entry, or just over half, remained to follow some form of secondary education.

Table 12 follows the same pattern for the six years of general education commencing in 1958.

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[1] This number, of course, includes a considerable number of the 12,760 pupils permitted by the 1961 primary school leaving examination to repeat the last year of the primary course, but they may legitimately be included in these figures since an even larger number of the original 1957 entry will also reappear in class VI in 1964.

TABLE 12. Singapore: approximation to the six-year progress of a secondary I cohort, 1958-63

Year	Class	Integrated	English	Chinese	Malay	Tamil	Total
1958	Secondary I		8 430	4 703	—[1]	—[1]	13 133
1959	Secondary II		8 188	3 939	—	—	12 127
1960	Secondary III	255[2]	6 599	3 146	—	—	10 000
1961	Secondary IV	250	6 129	2 813	—	—	9 192
1962	Upper secondary I	47	884	1 739	—	—	2 670
1963	Upper secondary II	42	872	1 587	—	—	2 501

1. Secondary education for these language streams was introduced in 1959.
2. Integrated schools were introduced in 1960.

It will be seen, in the general terms here attempted, that of 13,133 pupils who commenced a general secondary education in 1958, 9,192, or 70 per cent, reached the School Certificate class (fourth year) in 1961 and 2,670, or 20.3 per cent, went on to study for a Higher Certificate and possible university entrance. Of the 7,571 candidates for the two school certificate examinations, 4,251, or 56.5 per cent, passed. In the Higher Certificate examination in 1963, 2,034 sat for the examination and 824 obtained a pass. A final and very rough approximation suggests that of an estimated initial entry into primary I in 1952 of 277,560 pupils, those finally reaching university entrance standard numbered about 3 per 1,000 of the original primary intake.

TEACHER TRAINING

In 1963 the total teaching establishment numbered 14,438, almost equally divided between the sexes. Of this body 6,979 (48.3 per cent) were trained, 4,322 (30 per cent) were undergoing in-service training, and the remaining 3,137 (21.7 per cent) were untrained.[1]

Trained teachers formed 43.2 per cent of primary-school staffs, 67.3 per cent of secondary-school staffs, 80 per cent of technical secondary-school staffs and 67.4 per cent of vocational-school staffs.

Of the 3,038 teaching in post-primary schools, 1,265 were university graduates.[2]

The rise in total school enrolments (63 per cent between 1957 and 1963), naturally led to a corresponding demand for teachers, and the force increased by approximately the same percentage over the same period: the situation was rather less satisfactory, however, in terms of post-primary education, where enrolments increased by 119 per cent but teaching staff by only 97 per cent. The over-all staffing ratio had risen from 27.9 to 30.5.

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[1] The figures for 1965 were: total number of teachers, 16,301; untrained, 2,834; under training, 4,904; trained, 8,653; percentage of trained teachers, 52.5.

[2] Only two were Malays.

The 1963 Commission of Inquiry[1] lists as causes of difficulty in recruitment: (a) competition for graduates from the commercial and government sectors with better rates of pay and prospects of advancement, particularly since the introduction of a policy of 'Malayanization' in relation to professional and technical posts; (b) increasing withdrawals of women teachers because of marriage; (c) the demands for university staff caused by the expansion of third-level education.

The commission estimated that between 1964 and 1970 an over-all increase of 5,900 in the teaching establishment would be necessary to deal with an increased enrolment of 174,000 on the basis of pupil/teacher ratios of 31 : 1 in primary schools and 28:1 in secondary schools (the present ratios). The proportionate increase will be much heavier (113.3 per cent) in the case of secondary-school teachers. Allowing for a 6.4 per cent per annum wastage, the total annual recruitment needs are projected as rising from 1,961 in 1964 to 2,346 in 1970, of whom half will be needed in the secondary schools.[2] On this basis some 1,000 to 1,200 graduates should be recruited annually, but owing to the shortage of potential recruits (and surely, though the commission does not refer to this, to the increased cost of training and subsequent emoluments), the figure is scaled down to one-quarter, or an annual recruitment of graduates of 250 to 300, for service in the upper forms of secondary schools.

Most graduates proposing to teach, and all other teachers, are trained at the Singapore Teachers' Training College, a great competence which plays a vital role in the development of education in Singapore.

In 1960 the urgent need for additional teachers resulted in a policy of in-service part-time training being universally adopted, and that policy has subsequently dictated the organization of the college, though it is understood that a return to full-time training is to be reintroduced and gradually extended from 1966.

The principal training programme is a three-year in-service course for the Certificate in Education in all four languages of instruction, for which the entrance requirement is a School Certificate or its equivalent with a credit

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[1] op. cit., paras. 11.8 to 11.13.

[2] These projections have now been revised by the Ministry:

Year	*1966*	*1967*	*1968*	*1969*	*1970*	*Total*
New primary schools	234	214	—	—	—	448
New secondary schools	1 075	869	696	739	522	3 901
Replacements	1 127	1 196	1 241	1 288	1 322	6 174
Total recruitment	2 436	2 279	1 937	2 027	1 844	10 523

TABLE 13. Singapore: Teachers' Training College, courses, enrolments and output, 1963

Course	Enrolment on 31 December 1963			Output in 1963	Percentage of passes
	Male	Female	Total		
Trained under other schemes[1]	128	257	385	99	67.30
Certificate in Education:					
English	838	1 436	2 274	354	80.63
Chinese	665	518	1 183	248	78.20
Malay	102	56	158	—	—
Tamil[2]	9	5	14	—	—
Technical	169	—	169	35	85.47
Commercial[3]	24	2	26	—	—
HSC graduates[3]	40	29	69	—	—
One-year graduate courses:					
English[4]	27	20	47	16	—
Chinese[4]	94	28	122	6	—
TOTAL (professional course)	2 096	2 351	4 447[5]	758	—
National-language course:					
Grade I	118	54	172	109	34.80
Grade II	88	29	117	52	48.00

1. A course in Malay taken over from the earlier Department of Education.
2. Introduced in 1962.
3. New courses.
4. Reintroduced courses.
5. This figure shows an increase of 1,326 on the figure for 1962.

in the first language and two other subjects. (The requirements appear to be flexible in the case of Malay and Tamil teachers.) Specialist courses (one year full-time plus two years part-time) are conducted for teachers of both technical and commercial subjects. To staff the junior classes of secondary schools two-year in-service courses are held for holders of the English and Chinese Higher School Certificates, and a one-year in-service course is given for graduates of Singapore, Nanyang and other universities. Special non-professional courses at two levels are also given to teachers who wish to acquire proficiency in the national language (Malay).

Table 12 summarizes the position in 1963.

The college had, in 1963, an enrolment of 4,447 teacher trainees, and a staff of 123 full-time and 31 part-time lecturers, including two Unesco experts and eight Colombo Plan experts assisting mainly with technical and science courses. The student/lecturer ratio is 29.3 : 1, which appears to make very little provision for the supervision of trainees in the schools to which they are attached. The commission drew attention, as it could scarcely fail to do, to the fact that there were 10 full-time and 4 part-time lecturers in physical education, but only 3 lecturers in science and 5 in mathematics. The distribution is particularly surprising since not only are there courses for intending secondary-school teachers, but a sound grounding in the primary schools in number, observation, recording and deduction (perhaps not very resounding descriptions of mathematics and science at the primary level), are surely essential not only to a balanced education, but also to the basic problem of developing the human resources of Singapore.[1]

The commission calculated that the Training College would need to produce from 50 to 100 trained graduates a year up to 1970, and from 1,750 to 2,150 non-graduates. The 1963 intake of graduates was 168, and of non-graduates 2,180. The main source of anxiety would therefore appear to be not so much the number of primary teachers to be recruited as the quality of their training, and the problem of attracting graduates to the teaching profession. Clearly the emoluments of teachers, their conditions of service and the fringe benefits available will be most significant factors in dealing with this situation.

In 1965, according to information supplied to the Bangkok Conference of Asian Ministers of Education, the number of trainees enrolled at the Teachers' Training College was 4,700, with a full-time staff of 160 (an additional 1,600 students were enrolled in other specialized in-service courses): the *per capita* cost of the certificate training was calculated as M$1,035 per student. The teaching load of an in-service trainee, which in 1960 amounted to 84 per cent of the full-time teaching load, had by 1965 been reduced to 75 per cent of this.

It is fully appreciated that a system in which a training course is fragmented by heavy teaching responsibilities cannot be considered adequate. A considerable building programme is in course of completion at the present college, and the Second Development Plan provides for the establishment of a second college designed to accommodate 2,750 students. These measures should ultimately permit the restoration of full-time training and also the development of specialized in-service courses at a more advanced level.

GRADUATE SCHOOL OF EDUCATION

A study of the provision of education at the third level has been reserved for a later section of this profile, but it seems appropriate to refer here to the School of Education of Singapore University. Until recently the school conducted both one-year full-time and two-year part-time courses for university graduates leading to the Diploma in Education; the latter, for graduates already in service, being conducted both in English and in Chinese. Fourteen graduates were reading for an M.Ed. degree, and three for a Ph.D. in education in 1963/64. The school has also organized a number of in-service specialist courses, particularly in the teaching of various sciences, for which it is well equipped.

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[1] It must be added, however, that physical education is a compulsory subject in all courses; science and mathematics are optional subjects and content, for primary teachers, has been well covered in the secondary-school course.

In 1959 the school had an enrolment of 72 full-time and 9 part-time students. By 1963/64 the enrolment of full-time students had shrunk to 33, the number of in-service students had risen to 95, 29 in English and 66 in Chinese. The total graduate student body was therefore 128. The in-service courses, which involved the university in problems of teaching in Chinese and organizing its courses in morning and also afternoon sessions, factors which involved great difficulty, have now been discontinued.

The director estimates the present capacity of the school as 100 full-time and 150 part-time students, a total of 250 which could be increased to 300 with only staff increases. It is clear that the flow of arts and science graduates to teaching is inadequate to deal with the essential needs in secondary education and consequently for the adequate preparation of potential high-level manpower for industry and commerce. It appears, however, as if a policy decision has also affected the potential intake of the school, since the director of the school states:[1]

'Under the relentless pressure of a predominantly youthful and rapidly increasing population, the demand for teachers became so insistent that there was a change of educational policy.

'As a result, all government-sponsored graduates who propose to become teachers are required to enter the profession at once after graduation and to attend a special one year part-time teacher training course at the Singapore Teachers' Training College.[2] Student numbers have therefore fallen and, in the coming year, may be extremely small. The staff however are still associated with these students and have contributed to the design, teaching and examination of the course they attend.'

It is not easy to understand this apparent refusal to utilize the full services of a university School of Education when the need for trained graduates is an outstanding weakness in an intensely active education system, and though the director makes a number of references to collaboration with the Teachers' Training College where his staff apparently find additional employment, it would seem that the most fruitful relationships between two vital institutions have yet to be established.

It may perhaps be suggested that the research functions of a university School of Education, both in relation to the evaluation of educational developments both in Singapore and elsewhere, and particularly in reference to

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[1] *University of Singapore, Third Annual Report, 1963-64*, pp. 39-40.

[2] See above, p. 427.

TABLE 14. Adult candidates entering for school examinations, 1963

Examination	Sat	Full certificate	Percentage of passes
Government Secondary IV (Chinese) examination: (School Certificate standard)	326	96	29.4
Cambridge School Certificate examination	1 228	434	35.3
Federation of Malaya Certificate of Education and GCE	1 231	452[1]	36.7
Cambridge Higher School Certificate examination	265	72	27.2

[1] A further 136 candidates obtained the lower award of a General Certificate of Education.

new educational methodology and equipment, should be encouraged at this post-graduate level.

ADULT EDUCATION

In 1960 a new statutory authority, the Lembaga Gerakan Pelajaran Dewasa, was set up to replace an existing Council of Adult Education, and an immediate attack was made in the field of basic education, particularly language teaching. By September of that year 15,094 students had been gathered in 921 classes conducted at three levels, the highest of which brought the student to pre-secondary school standards.

By 1963 the July enrolment in these classes had risen to 20,490: the largest enrolment was in English, fluctuating during the year between 6,300 and 11,750. Language classes in Chinese attracted an average enrolment of 3,670, slightly more than the classes in the national language, while Tamil enrolments did not exceed 293.

Another series of classes is designed to cater for students who are only able to attend in the evenings, but who wish to obtain the qualifications normally obtained from school courses. These commence with general primary courses, with an enrolment of 800 in 1963, designed to qualify students for admission to the secondary evening classes. The secondary classes had an enrolment in May 1963 of 5,546 in English-medium classes, 909 in Chinese and 89 in Malay. Three hundred and ninety members of the police force also attended classes leading to the School Certificate examination —a promotion hurdle.

The result obtained in public examinations, whilst naturally not on the same scale of achievement as those from the schools, are sufficient to indicate that these classes are performing a most useful function in supplementing the education of those who have had to leave school prematurely, or who for one reason or another have had an interrupted education. The 1963 results were as shown in Table 14.

Commercial courses attracted over 2,000 students, who sit for the London Chamber of Commerce Intermediate and Higher Certificates. Group courses can be taken, or individual subjects such as accountancy, economics, commerce and finance, commercial law and secretarial practice. Commercial courses, including shorthand and the use of the very intricate typewriter, are also given in Chinese. Obviously these activities are vital to the maintenance of the commercial activities of the port.

In addition to all these courses, integrated with the hierarchy of examinations which exercise a very tight control over education in Singapore, whether in or out of school, the board organizes, in response to demand, a wide variety of vocational and recreational classes ranging from radio repairs and servicing to spoken Hokkien, from horticulture to map interpretation.

The administration of these activities, embracing some 50,000 students, is carried on by a staff which, until mid-1963, when four district organizers were appointed, consisted of 2 professionals, 12 administrative and clerical staff and 13 ancillary staff. The major difficulty has, inevitably, been recruitment of the necessary part-time teaching staff both in the technical fields and for School and Higher Certificate classes.[1] The pressure on buildings is also acute; schools, community centres, welfare homes, penal settlements, individual premises and a disused bungalow, all have been pressed into service. Indeed some schools were used on Saturday afternoons and all day on Sundays, as well as during the five week nights. Such a problem, and the attendant difficulties of cleaning, storage, the retention of displays, the size of furniture, an unsuitable environment and divided control seem inseparable from adult education in metropolitan areas, and whilst the full and therefore economical use of buildings is an important item in developing the productivity of an educational system, there must surely come a time when improvisation is not the only answer, and adequate full-time use should be made of buildings functionally designed for the more exigent of the adult activities.

In the introduction to the last available report of the board (for 1963) the chairman of its Literacy and General Education Committee wrote: 'In the tasks ahead, all available teaching resources will be tapped. It is hoped that the newly-established Department of Extra-Mural Studies at the University of Singapore will not duplicate the functions of the board and lead to unnecessary competition for scarce resources.'

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1. Consideration is now being given to the organization of training courses in teaching for competent technicians who have all the requisite skills for teaching except the art—or craft—of the teacher. Whether, for the sake of additional part-time employment, such potential instructors would be willing to undergo a course in methodology, remains a question.

This comment, in view of the present intensive activities of the board at the first two levels of education, which are thus remote from the external projection of university studies denoted by extra-mural studies, seemed to indicate not only a lack of liaison, but a further example of the uneasy relationship which appears to exist between the university and the Ministry of Education: it appears, however, that a *modus operandi* has now been reached between the two authorities, the Adult Education Board having agreed to concentrate its powerful activities on the first two levels.

HIGHER EDUCATION

THE FIRST UNIVERSITY

The University of Malaya

Sir Stamford Raffles, with the astonishing vision which illuminated the whole of his career, appreciated that the commercial settlement of whose future expansion he was in no doubt, would need local leaders and public servants, and that the facilities these needs implied might well be extended to the people of the mainland.

As has been seen (p. 413) this foresight was not vouchsafed his successors, and the first third-level institution to be established on the island was the Straits Settlements and Federated Malay States Medical School, whose appellation defies condensation by initial, and must have proved a rare obstacle to the vocal encouragement of supporters at its athletic encounters. The school opened in 1905 'in discarded buildings which had previously formed part of the female lunatic asylum'[1] with an entry of 23 students, and from the start a five-years' training was given, the licence in medicine and surgery which was the graduate award of the school being recognized in 1916 by the General Medical Council of the United Kingdom. By 1925 the title of the school had been gracefully reduced to that of King Edward VII College of Medicine, and by 1935 full courses in dentistry and pharmacy as well as in medicine were being given: despite the vicissitudes of the Second World War, when the buildings were used by the Japanese as a serological institute, by 1947 there was a total enrolment of 265, including 41 women, and 11 chairs (though 6 of these were vacant).

Post-School Certificate normal classes for intending teachers in English-stream schools were held in a number of schools, teachers in Malay were being trained in Malaya, largely at the Sultan Idris Training College in Perak, or the Malacca Malay Women's Training College, Chinese teachers in normal classes or in China: the Singapore Teachers' Training College was not established until 1950. For training secondary-school teachers a number of government scholarships were awarded at the University of Hong Kong.

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[1] Department of Education, *Annual Report, 1950*, p. 11.

In the field of general higher education it was happily decided to commemorate the hundredth anniversary of the foundation of Singapore by the establishment of an institution which would advance the level of the island's education and lay the foundation of a future university. Accordingly, as the result of public subscription and government grant, the vision of the founder was ultimately realized when, in 1928, 109 years since the first submission of the Minute on Education, Raffles College was opened with a staff from the United Kingdom. There appeared to be some danger of history repeating itself: at the beginning the new college was bedevilled with insufficient funds, no adequate control (exercised for a number of years *ex officio* by the Director of Education more than fully preoccupied with education at the first two levels), and a general suspicion that it was merely a teacher-training institution; thus in 1934/35 there were only 80 students. Many of the difficulties were overcome—the thirst for education was insatiable, even if the source were suspect—and by 1941 the number had risen to 300 and a three-year diploma course was being held in arts or science, the latter also covering the pre-medical requirements of the College of Medicine. Raffles College was a private institution with strong government representation on its council, the College of Medicine was a full responsibility of government.

Before the Second World War, in 1939, a commission under Sir William McLean[1] recommended the integration of the two institutions into a university college with an English affiliation as the first step in establishing a University of Malaya, but when in 1947, after a preliminary inquiry, a second commission under Sir Alexander Carr-Saunders arrived to report on the development of university education in Malaya, it considered that the standards of both institutions warranted the status of a full university.[2] It will be noted that the terms of reference related to Malaya, and not to Singapore alone, and that the report was issued from Kuala Lumpur. The commission shared the general view that the federation of Singapore with Malaya was bound to be effected in the near future, and consequently it was proposed that the amalgamation should be effected on a new site 'of great natural beauty' on the Malayan mainland in the State of Johore, at a distance of only some 20 miles from Singapore, which is connected with Johore by a rail and road causeway.

The merger was rapidly effected, and the first Convocation Day was held in 1950, with a student body of 781. However rising costs and delays, together with the need for providing accommodation immediately for a great influx of students made it necessary to abandon the idea of the new site, and the

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[1] *Report of the Commission on Higher Education in Malaya* (London, HMSO, 1939).

[2] *Report of the Commission on University Education in Malaya* (Kuala Lumpur, Government Printer, 1948).

TABLE 15. University of Malaya, Singapore: distribution of students in 1957

By territory	No.	Percentage
Federation of Malaya	1 134	62
Singapore	622	34
Sarawak and North Borneo	25	1
Other	44	3
	1 825	100

By course of study	Total No.	No. from Singapore
Arts	844	306
Law	42	22
Science	227	69
Engineering	92	32
Medicine	493	162
Dentistry	109	26
Pharmacy	18	5
	1 825	622

By sex	
Male	1 401
Female	424
	1 825

By race	
Chinese	1 145
Malay	228
Indian	229
Ceylonese	140
Eurasian	47
Other	36
	1 825

Source: *Educational Triennial Survey, 1955-57.*

university remained spread, with the necessary new buildings gradually arising, on the original sites.[1] It was further anticipated that a branch of the university would also be developed in due time in Malaya, at Kuala Lumpur.

The University of Malaya was sponsored and financed jointly by the governments of the federation of Malaya and of Singapore by means of grants for both capital and recurrent expenditure, but it enjoyed a very considerable degree of autonomy and its court and council were statutory bodies constituted under the laws of the two territories. There were three faculties, of Arts, Science and Medicine, and a Higher School Certificate, either overseas or local, was to serve as the basis for admission to the university.

By 1957 the distribution of students was as shown in Table 15.

It will be noted that although only one-third of the students were residents of Singapore almost two-thirds were Chinese. The distribution of courses of study for Singapore followed very closely the distribution through the whole university: in the whole student body, 48.5 per cent were reading in arts or law, 17.5 per cent in science and technology, and 34 per cent in medicine, dentistry or pharmacy, the percentage of those actually studying to become doctors being 27. It is probable, however, that the number of science students included those studying for the pre-medical year.

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[1] Much to the relief of the Medical Faculty. *Report of the Commission on University Education in Malaya*, op. cit., p. 59.

The University of Malaya, Singapore Division

In 1957 a commission under the chairmanship of Dr. Robert Aitken, vice-chancellor of the University of Birmingham, was appointed 'to review the constitution, working and finances of the University of Malay in the light of the experience and rapid expansion of the last seven years and of the prospective expansion in the near future, including the plan for developing the university in Kuala Lumpur'.[1]

These terms of reference drew attention to the fact that in a surely premature advance the first year of the Faculty of Arts had already been moved into Malaya, together with a course in education, and was housed temporarily at the Technical College, Kuala Lumpur. However the amiable prose of an official prescription gives little prominence to the other reason for summoning a commission: despite its most successful expansion and its high standards all was not well within the university. A breach had widened between the academic and the lay members of the council which, originating in the almost inevitable differences of opinion to be found in such composite bodies as to what is necessary expenditure, had unfortunately also reflected the fact that the academics were expatriate, and their views contrary, on a number of issues, to those of the Malayan and Singapore members of Council, and of some junior staff.

Administrative solutions altering the composition of the council were propounded as practical measures to deal with this situation, but even today it is not clear that the breach has been completely healed.

In the matter of expansion into Malaya, where site works were developing fast, two solutions were put forward: (a) the establishment of a Kuala Lumpur 'division' of the university, with teaching departments, for which the Government of Malaya would accept financial responsibility, subsidiary to the Singapore departments; and (b) establishment of a university college at Kuala Lumpur, offering degree courses approved by the Singapore Senate. The commission opted for their second scheme. In the event, however, neither scheme as formulated was acceptable to the two committees appointed by their respective governments to examine the report, and a third, and obviously interim, policy was followed.

Accordingly in the following year, 1958, legislation was enacted to provide for the development of the university to be effected by the creation of two largely autonomous divisions of equal status, the original institution in Singapore, and a new division in the capital of the Federation, Kuala Lumpur. Each division had a principal, a divisional council and a divisional senate, and co-ordination was effected by a single vice-chancellor and a central council with equal representation from each of the two divisional councils. The Arts Faculty and the educationists were recalled to Singapore,

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[1] *Report of the University of Malaya Commission of Enquiry, 1957* (Singapore, Government Printer, 1957).

TABLE 16. Distribution of student enrolment (all levels) by course in Singapore and Kuala Lumpur, 1957/58 to 1963/64[1]

Academic year	Arts		Education		Law		Science		Engi-neering		Agri-culture		Medicine		Dentistry		Pharmacy		Total	
	S	KL	S	KL	S	KL	S	KL	S	KL	S	KL	S	KL	S	KL	S	KL	S	KL
1957/58	566	(247)[2]	—	(31)[2]	42	—	227	—	92	—	—	—	493	—	109	—	18	—	1 825	
1958/59	639	—	61	—	110	—	171	—	—	100	—	—	433	—	89	—	12	—	1 515	100
1959/60	552	163	87	—	147	—	218	31	—	129	—	—	470	—	99	—	27	—	1 600	323
1960/61	402	354	77	—	227	—	242	114	—	159	—	27	530	—	111	—	52	—	1 641	654
1961/62	359	556	63	—	295	—	275	203	—	198	—	53	561	—	128	—	82	—	1 763	1 010
1962/63	423	723	164	—	359	—	383	318	—	226	—	74	582	—	136	—	102	—	2 149	1 341
1963/64	492	908	150	34	426	—	502	398	—	257	—	99	595	40	167	—	101	—	2 433	1 736

[1] S = Singapore; KL = Kuala Lumpur.

[2] Temporarily at Kuala Lumpur: totals included under Singapore heading.

but the Engineering Faculty moved to Kuala Lumpur, where the new division started life on the Pantai Valley site of the present university, growing rapidly until three years later it was agreed that the two divisions should separate into two completely independent universities.

The University of Singapore

On 1 January 1962 the University of Singapore succeeded the former University of Malaya (Singapore Division). The subsequent history of the new universities now divides, the rapid progress of the University at Kuala Lumpur being traced in the appropriate profile of Malaysia. Leave may be taken of the joint concept in Table 16, which traces enrolment in both divisions, and then in both universities.

Table 16, while showing a temporary recession in enrolment numbers between 1958 and 1961 caused by reductions in admissions to accommodate a change in the university calendar to coincide with the school year, indicates that the creation of the new division and subsequent University at Kuala Lumpur had no effect upon the total enrolment at Singapore, which in fact rose from 1,825 in 1957 to 2,433 in 1963 despite the loss of the Department of Engineering.

The figures for Kuala Lumpur show this transfer, the growth of the Faculty of Arts and the new Faculty of Agriculture (clearly more appropriately established in Malaya), and the beginnings of the new Faculty of Medicine, shortly to develop into a remarkable Medical Centre, and of the School (now Faculty) of Education.

Some indication of the transfer might also have been expected in the pattern of the distribution of students over the various departments in Singapore in its new guise: these are shown in Table 17.

In fact, these figures reveal little change in the main structure of the university: the percentage distribution between arts, law and education; science; and medicine was 48:18:34 in 1957/58 and 43.4:20.6:35.5 in 1963/64.

Within the faculties, however, it will at once be remarked that the number of students reading for an arts degree has fallen by more than one-half, doubtless due to the growth of the Arts Faculty at Kuala Lumpur. Law, on the other hand, a new department in 1957 with only 42 students, has risen to become a fully-fledged faculty with an enrolment of 426, and a considerable programme of research and international activities. The School of Education did not develop to the same extent, and its future is not altogether clear (see above, pp. 429-31). The proportion of students reading science, since this includes pre-medical students, remains comparatively modest: however the numerical loss (92) sustained by the transfer of engineering has been more than recovered.

As will have been expected there has been a considerable change in the

Table 17. Singapore: percentage distribution of total student enrolment by course

Year	Arts	Education	Law	Arts and law aggregate	Science	Medicine	Dentistry	Pharmacy	Medical aggregate
1957/58	44.0	2.0	2.0	48.0	18.0	27.0	6.0	1.0	34.0
1958/59	40.0	4.0	7.0	51.0	16.0	27.0	5.0	1.0	33.0
1959/60	34.5	5.5	9.3	49.3	13.6	29.4	6.2	1.5	37.1
1960/61	24.5	4.7	13.8	43.0	14.7	32.3	6.8	3.2	33.3
1961/62	20.4	3.6	16.7	40.7	15.6	31.8	7.3	4.6	43.7
1962/63[1]	19.7	7.6	16.7	44.0	17.8	27.1	6.3	4.8	38.2
1963/64	20.2	6.2	17.5	43.9	20.6	24.4	6.9	4.2	35.5

1. If reference is made to the *Annual Report* of the university for the year 1962/63, page 130, Table 1, it will be discovered that the percentages for that year in Table 17 above are recalculations since the percentages supplied in the report do not in fact relate to the data on which they are apparently calculated.

Table 18. Graduates of Singapore University, 1957/58 to 1963/64

Year	Higher degrees	B.A.			L.L.B.	B.Sc.			M.B.; B.S.	B.D.S.	B.Pharm.		
		Honours	Pass	Total		Honours	Pass	Total			Honours	Pass	Total
1957/58	10	55	84	139	—	25	22	47	42	13	—	—	—
1958/59	—	76	115	191	—	14	36	50	67	15	—	2[1]	2
1959/60	8	94	211	305	—	23	60	83	89	20	—	4	4
1960/61	13	84	50	134	22[1]	36	12	48	81	18	1[1]	6	7
1961/62	12	53	23	76	22	20	50	70	65	18	—	11	11
1962/63	13	56	37	93	47	42	69	111	70	10	3	24	27
1963/64	17	64	29	93	28	51	70	121	73	9	5	19	24

1. First award.

TABLE 19. Diplomates of Singapore University, 1957/58

Year	Education	Social studies	Public health	Pharmacy
1957/58	32	24	7	5
1958/59	46	22	4	1
1959/60	59	13	6	6
1960/61	70	15	9	4
1961/62	41	14	7	—
1962/63	46	10	3	—
1963/64	93	14	3	1

racial and geographical distribution of students. The percentage of Chinese students has risen from 63 to 81.2, that of Malays has dropped from 12 to 2.8. Whereas in 1957, 34 per cent of the students originated from Singapore and 62 per cent from Malaya the proportions have now been reversed, 68.8 per cent deriving locally and 29.7 per cent coming from the Federation in 1963/64.

Tables 18 and 19 summarize the output of the university during the period under review.

It should be noted, when adding the annual faculty totals of grades to find the output of the university, that in arts (until 1963/64) and in science the pass figure and not the honours degree figure should be taken into account, as honours students will already have been enumerated in the previous year pass list.

No very accurate picture of the relation between enrolment and output can be given since during recent years there have been many changes in the requirements for degrees: pre-university qualifications may affect the stage of entry without being statistically recorded, and neither Arts nor Medicine enrolled new students in 1958/59 owing to the calendar changes. Furthermore, it appears to be impossible to extricate the survivors of an original cohort from the composite groups forming second- and further-year students, containing as they do referred students from earlier years.

That the wastage rate is extremely low compared with most countries in the region can, however, be gathered from the following sets of data which show, for arts, science and medicine, the intake and examination records of the first and last years of an entry.

It will be seen from the figures quoted in Table 20, which are typical, that wastage from drop-out is extremely slight, in the first as in the final year: 3 from 114 in the first year in arts, 6 from 71 in science and 1 from 80 in medicine. Examination failures in the first and final years are also very low, though a system of referral offers a second examination at the end of the long vacation before a second referral implies repetition of the course year.

Table 20. University of Singapore: first-year enrolments and subsequent graduation figures in specimen years for arts, science, and medicine

Cohort A: arts

Year of intake	Third and final year	Enrolled	Examined	Honours	Pass	Referred	Late pass	Total passes	Failed	Percentage of passes to enrolment
1961/62	—	114	111	37	36	18	12	85	26	74.6
—	1963/64	109	105	59	29	—	—	93	12	85.3

Cohort B: science

Year of intake	Third year (ordinary degree)	Fourth year (honours degree)	Enrolled	Examined	Passed	Failed	Percentage of passes to enrolment
1960/61	—	—	71	65	55	10	77.5
—	1962/63	—	79	79	70	9	88.6
—	—	1963/64	57	51	51	—	89.5

Cohort C: medicine

Year of intake	Sixth year (finals)	Admitted	Examined	Passed	Referred	Late pass	Total passes	Failed	Percentage of passes to enrolment
1957/58	—	80	79	45	34	24	69	10	86.3
—	1962/63	(21)[1] 86 107	107	97	4[2]	—	97	6	90.7

[1] The sixth-year course in medicine included 21 students referred from 1961/62. They cannot be distinguished from the six-year group in the ensuing examination results.

[2] Four students were referred to 1963/64.

The figures in medicine are certainly impressive and possibly surprising: for example, in the academic year 1963/64 in a series of fifteen examinations of which nine were final examinations and six supplementary (i.e., of referred candidates) from 718 examinees there were 663 passes and 55 failures. It is assumed that 164 referred candidates were absorbed in the final count of passes and failures. This gives a departmental pass rate of 92.3 per cent, which is a tribute both to the extremely high and competitive entrance standard required, and to the tenacity of Singapore students.

Staff

In the academic year 1962/63 the staffing situation could be summarized as:

Faculty	*Full-time staff*	*Part-time staff*	*Student body*	*Student/staff ratio*
Medicine, Dentistry, Pharmacy	85	60	820	8.2
Arts	57+	5	423	7.3
Education	11	—	164	15.0
Law	13+	24	353	18.6
Science	39	—	383	9.8

The distribution of full-time teaching posts was: 36 professors, 5 readers, 27 senior lecturers, 84 lecturers, 47 assistant lecturers and 2 research assistants. Of the professional posts, 32 were established, and 6 were vacant: the other 4 were visiting professors.

The university in 1965/66

The last eight years have been momentous in the development of the university. They have witnessed a steady growth in all fields but that of applied science, but at the same time an increasing estrangement from the development of higher education in the peninsula, a trend which, though probably inevitable must still be looked upon with some measure of concern.

The period has seen the establishment of the School of Education, the Department of Extra-Mural Studies, the Department (now Faculty) of Law, a degree course in pharmacy, and a Department of Social Sciences.

There have also been losses: the Department of Engineering was moved to Kuala Lumpur, and became a faculty, and the new Faculty of Agriculture was, in the final event, established at Kuala Lumpur and not at Singapore. The Department of Islamic Studies was also established at Kuala Lumpur where the Muslim College, Klang, entered into a formal relationship with the university. There was a considerable exodus of staff taking up new appointments at Kuala Lumpur, and a world figure left Singapore with the resignation of the professor of history, Dr. Northcote Parkinson.

The year 1960 saw the introduction of pre-university classes in all faculties for students from non-English schools, 72 being admitted to the first course, and a statement on university policy for the future indicated that thought was being given to the establishment of a Department of Music.

In the academic year 1964/65 the university was composed of four faculties: Arts, Law, Science, and Medicine, and a School of Education. The Faculty of Arts included Chinese language and literature, Malay studies, English, geography, history, economics, philosophy, political science and social studies: the Faculty of Science included departments of botany, zoology, chemistry, physics, and mathematics. A considerable amount of interfaculty 'service teaching' was undertaken by various departments.

Admission to first-degree courses is based upon the Cambridge Higher School Certificate or its equivalent, i.e., upon a six-year secondary-school course, the last two years of which form a post-School Certificate course; various department requirements are based on a minimum of two subjects at principal level, or one at principal and two at subsidiary level. Good passes in three principal, or two principal and two subsidiary subjects in the Higher Certificate examination, with the approved combination of subjects, secures admission to the second year of the science and medical courses.

Arts degrees entail a three-year course for first class honours, upper and lower division second-class honours, or a pass degree: three subjects have to be offered in the first year, and one or two in the last two years. Law requires four years for full-time students, six for part-time students. In science a three-year course leads to a pass degree (two subjects), and a further year's specialization in one field leads to an honours degree in three classes, the middle one subdivided. The degrees in medicine and surgery require about six years of study, in dental surgery about five years, and pharmacy three years.

Diploma courses are held in social studies (two years), public health (one year), and education, a post-graduate course of one year (see p. 429).

Further degrees include master's degrees, obtained by at least one year's study and the submission of a thesis, and a Ph.D. which requires two years of study as well as a thesis. Other doctorates depend upon the quality of published work which makes an independent and notable contribution to the advancement of knowledge.

Present plans for expansion, by which an enrolment of 4,000 is to be reached by 1970, an increase of some 50 per cent of the present capacity, include a Faculty of Technology,[1] an Institute of Medical Specialities, and the development of research facilities in science and medicine.

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[1] Apparently to be devoted largely to industrial chemistry. The relationship between this proposed development and the expansion of the Polytechnic as a technological university is not clear.

NANYANG UNIVERSITY

The plural nature of Malayan society had not been without its impact on the University of Singapore. Two-thirds of the students were Chinese, but instruction was in English, and the majority of scholarships awarded by the Government of Malaya went, as its constitution permitted, to Malay students. When educational facilities in the People's Republic of China were closed to residents outside the country, and with the simultaneous growth of secondary schools teaching a six-year course in Chinese, the Chinese Hokkien community determined to establish its own institution of higher education, and with the sponsorship of a group of wealthy Chinese businessmen Nanyang University was planned in 1953 and admitted its first students in 1956.[1] The university was founded by a limited company since the government was not prepared to grant a charter until after the usual inquiry into standards and staff and a possible period of apprenticeship as a university college. The university is most beautifully sited on the hills above Jurong: the property covers 513 acres, of which some 100 have been developed. The existing major buildings include two arts buildings, two science blocks, a block for commerce, a library, an administrative building, a students union, a clinic, two dining halls, 25 hostel blocks, 25 bungalows and 176 flats for staff, and an auditorium with a seating capacity of over 3,000.

Nanyang, teaching in Chinese, broadly follows the Chinese (Taiwan) university system, based upon the American pattern, by which students have to secure a requisite number of credits in prescribed courses for graduation. The university is divided into three colleges which had an enrolment, in 1957, of 388 in arts, 327 in science and 185 in commerce. Of these 900 students, 711 men and 189 women, 764 were in residence.

Student enrolment increased rapidly, and when Singapore became self-governing in 1958 a grant was made and an ordinance hastily passed to incorporate the university and revise the initial system of control based on the management system of the Chinese schools of Singapore whereby those who financed the school also made staff appointments and directed educational policy. Nanyang had in fact been controlled by a Finance Committee which kept its accounts at the Chinese Chamber of Commerce, and no academic staff were represented either on it or on the Buildings Committee. The internal affairs of the university were managed by an Executive Council, and liaison with the other committees was effected through a secretary-general quite without academic experience. The ordinance replaced this quite unique system with a council and senate, a general meeting of members of the university serving, in some respects, as a court.

While this legislation was passing through the required number of readings in the Assembly, a Commission of Inquiry was set up, under the chairmanship of Mr. (now Sir Stanley) S. L. Prescott, vice-chancellor of the university of Western Australia, who had had considerable experience of university education in China, to 'look into the academic standards of Nanyang University and the adequacy of the teaching staff and equipment and the means adopted by Nanyang University for ensuring satisfactory standards of academic work'. Members of the Commission were, not unsurprisingly, astonished to find that legislation redesigning the administration of the university had already passed the committee stage before they could meet, and that no full submission had been prepared by the university, which would not be in session during their stay in Singapore. The report of the commission[1] while admiring the idealism of the founders and the enthusiasm of such students as they had met, considered that the university had grown too fast without continuous expert preliminary planning; that the organization and administrative system was inappropriate (the ordinance, of some sections of which the commission was highly critical, was to deal with this); the standard of library and laboratory provision inadequate; too great a proportion of the staff insufficiently qualified; the terms of employment discouraging to recruitment and demoralizing to those recruited; and the curriculum overloaded and unco-ordinated. The commission therefore felt unable to recommend to government to consider Nanyang degrees (437 were to be awarded at the end of the year), as comparable with those of other recognized universities. It further recommended that an *ad hoc* committee should be appointed 'to review our report and to determine the extent and sequence of the reorganization deemed necessary'.

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[1] For a short period at the inception of the university the distinguished vice-chancellor was Professor Lin Yu Tan.

The list of recommendations closes with a memorable paragraph: 'We would like to see the present idea of a separate "Chinese university" and a separate "English university" replaced by the idea of two Malayan universities, one teaching principally in English, the other teaching principally in Chinese, sharing the same ideal of building up, through multilingual proficiency, sound scholarship and intellectual solidarity, a harmonious community characterized by mutual understanding and respect. In this way, we believe that the present traces of mutual distrust, bred in long educational isolation, will disappear completely in the new unity which will surely grow under independence and freedom.'[2]

Immediately following the publication of the commission's report, the 'Review Committee' therein recommended was set up in July under the chairmanship of Dr. Gwee Ah Leng, a physician at the General Hospital, and a lecturer at the University of Singapore. The terms of reference were 'to determine the extent and sequence of the reorganization deemed necessary', but the chairman replied in his letter of transmittal 'inasmuch as all the documents relating to the commission's investigations had been destroyed, it was necessary for us to cover much the same ground in our own investigations'.[1]

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[1] *Report of the Nanyang University Commission, 1959* (Singapore, Government Printer 1959).

[2] ibid., p. 30, para. 9.17.

The committee split on whether to recommend that Nanyang University should be integrated within the University of Malaya (as the University of Singapore then was) or, the majority opinion, that there should be more than one university, provided that both were oriented towards a Malayan content. They were unanimous, however, in stating that Nanyang should evolve 'into a university where students from all Malayan secondary schools can obtain an education'.

Other recommendations included government aid by deficit financing, student bursaries and matching grants for donated capital funds; a board of selection for the expert recruitment of staff and the assessment of staff standards; better terms of service for the staff; and reforms both of curricula and of the examination system. A sequence for reorganization was drawn up with the following programme: (a) the appointment of an acting vice-chancellor; (b) the establishment of a provisional council and senate, to be followed in due course by permanent bodies; (c) the establishment of a court, and a guild of graduates (to provide for representation on statutory university bodies); (d) the setting-up of a joint working party of representatives of Nanyang and the University of Malaya and the governments of Singapore and the Federation of Malaya, to plan the future relations of the two universities; (e) the revision of the curriculum; and (f) the establishment of a pre-university course for students whose only weakness was in English.[2]

The report was accepted in principle by government, which stated that it was prepared to grant Nanyang parity of treatment with the University of Malaya in respect of Singapore students (some 40 per cent of the enrolment) amounting to some M$2,115 million in the year 1960/61, provided that reorganization was carried out as recommended by the committee.

A liaison committee of Nanyang and government representatives was set up to reach agreement over the question of representation on the proposed university council, and the council itself met for the first time in July 1962: the pre-university course had already been established. In the following year the university was admitted to full membership of the International Association of Universities.

In 1965 yet another committee was appointed, this time by the university itself, 'To review the current organization of courses of study and contents of individual courses in Nanyang University and to recommend to the university revised courses of study adapted to the needs of our society.' The chairman was Dr. Wang Gungwu, professor of history at Kuala Lumpur.

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[1] *Report of the Nanyang University Review Committee*, p. v (Singapore, Government Printer, 1960).

[2] This proposal in an avowedly Chinese university is not without significance.

This Curriculum Review Committee reverted at once in its report[1] to the major theme stressed by the two former Committees:

'3. It appears to us that the university has so far served only a limited purpose. Attention has been paid to producing large numbers of graduates without adequate consideration of the prospects of employment for the graduates, or of high standards of teaching and research, or of the fundamental objectives of higher education in a plural society. It has so far catered only for students from the Chinese-medium schools in the country. We feel that this function is too narrow and a great deal can be done to re-orientate the university towards serving our society as a whole.

'4. We feel that the nature of our society must be reflected in any institution of higher learning which purports to serve that society. In order to achieve this, the courses of study in the university must be adapted to ensure that students from all streams of education in the country may benefit from the university's existence.

'5. Our society is greatly concerned with the prosperity and peaceful development of our new nation of Malaysia. In this context, there is an urgent need for people with a deep, rational and sympathetic understanding of the multiracial basis of the country. The university should produce graduates able to guide the course of the country's development, and trained to administer the public services and manage the growth of commerce and industry, and specially equipped to meet the nation's need for rapid modernization.'

The committee considered that the university should open its doors to students from all streams of education in the country, a language centre being created to develop the teaching of Chinese, English and the national language. All students should be required to attain fluency in two languages, and given every opportunity to acquire it in three. The curriculum was most thoroughly revised, and suggestions made for amending the degree structure to allow for the award of both pass and honours degrees, and, it was suggested, higher degrees. It was also recommended that a number of departments should be discontinued or reoriented, opportunities for research provided and staff of high academic calibre recruited, which would involve an upward revision of salaries to bring them into line with other university salaries in Malaya.

Unhappily it must be recorded that the tenor of the report was resented by some members of the student body, which had never been particularly noted for docility, as an attack upon the purely Chinese character of the present institution—which indeed it was, though in the most reasonable and constructive sense—and a series of violent clashes with the authorities and the police ensued. However, though the future may still be uncertain the path has certainly been illumined.

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[1] *Report of the Nanyang University Curriculum Review Committee*, p. 1 (Singapore, Nanyang University, 1965).

TABLE 21. Nanyang University: student enrolment and distribution, 1956-65

Academic year	Arts	Science	Commerce	Total
1956	239	256	89	584
1957	388	327	185	900
1958	606	502	220	1 328
1959	810	629	287	1 726
1960	902	694	265	1 861
1961	964	690	306	1 960
1962	988	747	375	2 110
1963	761	840	723	2 324
1964	702	860	711	2 273
1965	551	885	690	2 126

TABLE 22. Nanyang University: student enrolment by country of origin, 1965

Origin	Arts	Science	Commerce	Total	Percentage of total enrolment
Singapore	288	399	163	850	40.0
Malaya	216	425	466	1 107	52.0
Sarawak	30	23	35	88	4.1
Sabah	—	—	—	—	—
Brunei	4	3	5	12	0.6
Indonesia	5	10	12	27	1.3
Others	8	25	9	42	2.0
TOTAL	551	885	690	2 126	—

Tables 21 and 22 show the distribution of the student body in courses since 1956.

It seems fairly clear that actual high-level manpower needs have been effective in securing the greatly increased enrolments in commerce and science, with a corresponding reduction in arts students.

The contribution made by the two universities in Singapore[1] to higher education in Malaya—in fact, to the higher education of the Chinese in Malaya—is of extreme significance as is shown below in Table 29. It is also clear that of the Borneo States only Sarawak, with a large Chinese population, is able to make any effective use of the facilities available in Singapore.

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1. See also p. 435 for percentages of students from Malaya at the University of Singapore.

TABLE 23. Nanyang University: staffing, 1962

School	Enrolment	Staff		Student/staff ratio[1]
		Full-time	Part-time	
Arts	954	51	9	17.7
Science	684	48	2	14.0
Commerce	356	19	11	16.4
TOTAL	1 994	118	22	16.0

1. Four part-time staff are taken as corresponding to one full-time staff member.

The total enrolment was almost exactly the same as that of the University of Malaya at Singapore in 1963 (2,433): the distribution of students, however, is scarcely comparable owing to the wider range of departments in the older university and the flexibility of the unit system, which is not revealed by the three 'schools' of Nanyang. The number of graduates at Nanyang in the same year was 405, at the other university 371. On the basis of the Prescott Report it might be possible to regard the former in the light of pass degrees, the latter as honours degrees.

At the time of the 1959 Review Committee, of a staff of 106 who replied to the committee's questionnaire (17 did not), 63 were teaching in Taiwan before joining the university staff, 17 in Hong Kong, only 1 in Singapore and 1 in Malaya. The United States only accounted for six (they would, of course, have to be Chinese or Chinese-speaking). The others came from widely scattered sources, presumably recruited by invitation. The latest available breakdown of staff is for September 1962 and is shown in Table 23

A recent official statement[1] indicates that the university is still being reorganized on the basis described above, and that government grants, which have already amounted to M$858,000 for deficits in recurrent expenditure and M$1,980,000 in capital grants for a new library, books and scientific equipment, will be increased with the progress of reorganization.

There are two terms at this private university, and terminal fees include M$360 (M$270 for Singapore citizens) tuition fees, M$335 for board and lodging in a student hostel, and various small charges amounting to some M$56. Almost half the Singapore students in residence are in receipt of government bursaries.

In the ten years since its establishment the university has produced more than 2,000 graduates of whom some 150 are reading for higher degrees in universities overseas. A number of these young men, able and dedicated students, are now returning to teach at their old university. It seems certain that Nanyang will play an increasingly significant role in the future of Singapore.

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[1] *Member States' Progress Reports: Singapore* (Bangkok, Unesco, 1965. Unesco) EDECAS/6).

SINGAPORE POLYTECHNIC

In 1951 a committee had been formed to investigate the shortage of trained draughtsmen and technicians in the engineering industry. The committee was led to suggest training for other careers such as architecture, accountancy and seamanship, and was succeeded by another committee[1] set up to consider the wider project of the establishment of a polytechnic in Singapore.

The ground was most thoroughly covered, expert advice wisely sought and judiciously followed, and after considerable building activity and a strenuous period of staff recruitment the Polytechnic opened its classes in November 1958. The first year was to a certain extent an exploratory period, but within one week 2,700 students had been enrolled, over 400 of them full-time students, 500 on a part-time day-release system made possible through the co-operation of employers: the remainder attended evening classes. A full-time staff of 40 lecturers and over 100 visiting staff went into action.

After some initial adjustment, departments of Engineering, Architecture and Building, Accountancy, and Nautical Studies were fully established in 1959, and a local system of examination with external examiners was substituted for the examinations of overseas professional bodies. Diplomas were to be awarded at the professional, technician and craft levels, the minimum entrance qualification for the two upper levels being at first a Cambridge School Certificate or its equivalent.

By the 1962/63 session enrolment had risen in the four years following the initial year (i.e., from 1959/60), from 1,655 to 2,735, an increase of 1,080: the number of full-time students had risen from 558 to 1,174, and of evening-class students from 702 to 1,270.

In the following year the craft classes, with one exception, were transferred to a former trade school which now became the Singapore Vocational Institute, and the first step had been taken to upgrade the status of the Polytechnic into that of a college of advanced technology.[2] In 1964 a further distinguished team of specialists came out to advise the Polytechnic in detail as to further measures necessary, and the following statement was subsequently issued by the principal:

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[1] This profile will have made it clear that Singapore has thoroughly assimilated the British custom of cautious exploration, and, if necessary, covered retreat, through the committee system.

[2] In September 1963 the Polytechnic was visited by Dr. B. V. (later Lord) Bowden whose committee were considering the possibility of establishing a faculty of technology at the University of Singapore, and the possibility of a closer liaison between the two institutions, especially in relation to degree awards to professional graduates of the Polytechnic.

Table 24. Singapore Polytechnic courses, 1965/66, full-time and part-time

Department	Professional level			Technician level		
	Course	Full-time (years)	Part-time (years)	Course	Full-time (years)	Part-time (years)
Engineering	Mechanical engineering	4		Mechanical engineering	3	5
	Electrical engineering	4		Electrical engineering	3	5
	Civil engineering	4		Telecommunications engineering	3	5
	(All above are degree courses)			Civil engineering	—	5
				Marine engineering cadets	2	5
				Production engineering	3	
				Naval architecture	—	2
				Work study analysis	1	—
Building and Architecture	Architecture (degree course)	5	7	Draughtsmanship		4
				Land surveying		4
	Building	4	—	Structural engineering		5
	Quantity surveying	5	—	Building construction and organization	3	5
	Valuation surveying	—	4			
Accountancy	Accountancy	3	6			

TABLE 25. Courses in the School of Nautical Studies

Special course	Duration
Pre-sea training course	1 year full-time
Marine radio operators' course	2 years full-time
Short full-time courses:	
Courses to prepare students for the Marine Department examinations for the following certificates: Master's Foreign-Going Certificate, First Mate's Foreign-Going Certificate, Second Mate's Foreign-Going Certificate, Master's Home Trade Certificate, Mate's Home Trade Certificate	12 weeks full-time
Radar observers' course	2 weeks full-time
Course in radio-telephony	3 weeks full-time
Courses of training for Master's Local Trade, Mate's Local Trade, and Helmsman's Certificate	2 or 3 months as required, evenings only

'The Singapore Polytechnic is an institute of technology in which two streams of students are instructed in three branches of technology, accountancy, architecture and building, and engineering.... There are also provisions for the training of merchant marine deck officers and marine engineers by means of courses for pre-sea cadets, mates' and masters' certificates (local trade and foreign-going) and marine engineering.

'The two student streams in the academic departments are the technicians and the professionals. At the present time, the graduates receive at the end of their courses either a technician or a professional diploma of Singapore Polytechnic as appropriate. However, the intention is to replace the diploma by a degree in the case of the professional stream, and initially this will be accomplished by arrangements with the University of Singapore, who will award the first batches of degrees—probably in three years' time. Subsequently the Polytechnic will in the course of expansion become a dual institution, a technical college and a technical university, separate as to buildings and accommodation but sharing a common administration (at least initially), and a common campus.'

In 1965 the senior courses were recognized by the University of Singapore as degree courses, and entrance qualifications, which had already been upgraded to require two further years after the School Certificate, were reframed to meet the requirements of the University of Singapore, the principal becoming a member of the university senate. The courses available at the Polytechnic during the 1965/66 session are shown in Tables 24 and 25.

A liberal studies section, attached for administrative convenience to the Department of Accountancy, provides obligatory courses at the appropriate level in the fundamentals of language, clear thinking and social economy to

TABLE 26. Student enrolment

Department	Session				
	1959/60	1960/61	1961/62	1962/63	1963/64
Accountancy:					
Professional	140	237	310	380	449
TOTAL	140	237	310	380	449
Architecture and building:					
Professional	127	162	158	171	176
Technician	219	157	282	293	348
Craft	278	194	126	148	—[1]
TOTAL	624	513	566	612	524
Engineering:					
Professional	68	181	218	243	297
Technician	511	698	637	785	898
Craft	448	595	655	677	24[2]
TOTAL	1 027	1 474	1 510	1 705	1 219
Nautical	22	37	56	40	49
GRAND TOTAL	**1 813**	**2 261**	**2 442**	**2 737**	**2 241**
Nautical short courses	348[3]	78	68	69	141

1. Craft courses were transferred to the Singapore Vocational Institute (the old Balestier Road Trade School) in 1964.
2. Only a radio and television servicing (advanced) course.
3. The major demand for local 'tickets' was satisfied during this first year.

support the courses in engineering, architecture and accountancy at both professional and technician levels. Special classes are also held in English language, economic history, geography, both physical and economic, and other subjects of the humanities.

The School of Nautical Studies trains deck officers and radio officers for the mercantile marine, and offers academic instruction in the grades of certificate.

Table 26 gives a general picture of enrolment at all levels from 1959 to 1963. It is difficult to relate graduation to enrolment in view of the combination of full-time and part-time students: the outputs for the four years from 1960 to 1964 are shown in Table 27, and it is clear on comparison with Table 26 that there is everywhere a heavy wastage, though even a partial training cannot be accounted a dead loss.

TABLE 27. Singapore Polytechnic: graduates at all levels, 1960/61 to 1963/64

Level	Session			
	1960/61	1961/62	1962/63	1963/64
Professional	8	30	56	51
Technician	56	71	102	122
Craft	116	193	199	—[1]
Engineering:				
Professional	—	14	26	21
Technician	31	36	63	87
Craft	72	161	150	—[1]
Architecture and building:				
Professional	3	5	6	14
Technician	25	35	39	35
Craft	44	32	49	—[1]
Accountancy:				
Professional	5	11	24	16

1. Courses now removed to the Singapore Vocational Institute.

In the early days of the Polytechnic a study of wastage in the largest department, Engineering, was made, for the Commission of Inquiry into Vocational and Technical Education:[1] Table 28 combines both failures and drop-outs during one year. The report, which had previously noted with concern that only 20.9 per cent of the 780 technicians in the total enrolment of the Polytechnic for 1960 were full-time students, comments: 'The unduly high figures registered for part-time technician students bear looking into. There is a greater failure rate for part-time students as compared with full-time students, as well as a greater tendency to leave during the session . . . the expensive facilities available could have been better utilized towards training more full-time students.'[2]

By 1963 the over-all proportion of full-time students to part-timers was 940 to 1,289 (42 to 58 per cent) and future plans appear to envisage an enrolment of 4,000 of whom 50 per cent should be full-time.

The *Progress Report* made to the Bangkok Conference of Ministers[3] says of the Polytechnic: 'As a positive measure to meet the needs of industrialization, the Singapore Polytechnic has successfully arranged that its graduates

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[1] *Report*, op. cit., p. 29.

[2] It was this report which was responsible for the removal of the craft courses to provide more room for expansion at the higher levels, and which pressed for the development of the Polytechnic into a college of advanced technology.

[3] op. cit., p. 13.

TABLE 28. Percentage wastage in Engineering Department, Singapore Polytechnic (session 1960/61)[1]

Level of course	Full-time students			Day-release students			Evening students			Totals		
	E	P	W	E	P	W	E	P	W	E	P	W
			%			%			%			%
Professional	182	127[2]	30.2							182	127	30.2
Technician	88	66	25	240	92	61.7	316	123	61.1	644	281	56.4
Craft	169	107	36.7	186	125	32.8	244	104	57.4	599	336	43.9

[1] E = number enrolled at beginning of session; P = number promoted at end of session; W = percentage wastage.

[2] Owing to a common first year for both professional and technician courses, about half this number would actually follow the technician course in the second year.

in engineering, building and accountancy will be awarded degrees by the University of Singapore. Eventually, the Polytechnic will be re-sited, with two separate units, one for training students at technician diploma level, and the other will be an institute of advanced technology awarding degrees of its own. With these facilities, it is envisaged that Singapore will become a centre for technical and technological education in South-East Asia.'

NGEE ANN COLLEGE

In May 1963, another influential group of Chinese, the Ngee Ann Kongsi (Association) of Singapore also entered the educational field and established an independent 'college of technology and commerce' teaching in both the Chinese and English languages and, except for language teaching, using textbooks in English.

The entrance qualification is a School Certificate or its equivalent, and the courses are of four years' duration, or six years for evening-class students. Courses are organized on the American credit system, and there are three faculties. The Arts Faculty has departments of Chinese and Malay Languages, the Faculty of Commerce has departments of Business Administration and of Accountancy, and the Faculty of Technology has departments of Applied Chemistry, Telecommunications, and Domestic Science. Work commenced during the year on a new set of buildings for the Faculty of Technology.[1] Bursaries to the college are awarded by the government.

The rather curious combination of departments is explained by the attempt to match the output of the college with the industrial and commercial needs of Singapore: thus, applied chemistry is designed to teach the special problems of analysis and manufacture in local chemical industries, and among the electives are very short courses on, for example, the fibre industry and fertilizer chemistry. Similarly, the Telecommunications Department deals with the engineering skills required by the new and successful electronics industry.

In 1965 the total academic staff was 36 full-time and 20 part-time teachers, with a student body of 666 full-time students, 106 students attending evening classes in Chinese or accountancy and 89 in classes preparatory to enrolment.

The terminology of the college is that of a fully-fledged university, but at the moment it appears to be rather filling the role and satisfying the standards of what might be termed in the United States a 'community college'.

Of this college, the *Progress Report* to the Bangkok Conference[2] states: 'Ngee Ann College was founded in 1963 as a private institution by the Ngee Ann Kongsi, a Chinese clan association, to provide technical, domestic science and language instruction at post-secondary level for Chinese-medium school-leavers. The Kongsi recently announced that a committee of inquiry will be appointed to make recommendations for the future development of the College. The government watches with interest the development of Ngee Ann College.'

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[1] The college is at present situated in a building without a campus in the heart of the city. The new buildings will be some five miles beyond the city limits; however, residential accommodation is not contemplated.

[2] op. cit., p. 14.

There can be no doubt that the successful development of a multipurpose post-secondary training institution would be of great value in producing some of the Category II personnel required to support the professional cadres:[1] the need for such institutions throughout the region is evident. It seems fairly clear, however, that the perhaps more necessary, but more modest targets of such an institution would not satisfy the promoters or the pupils of this college. Yet another Review Committee has been appointed (February 1966) to advise upon the future of the college.

CONCLUSION: HIGH-LEVEL MANPOWER

The present sources of recruitment for high-level manpower (doctors, technologists, senior administrators, the higher echelons of business executives) are: (a) the University of Singapore and Nanyang University; (b) Singapore Polytechnic; and (c) students from Singapore studying overseas. A potential source of recruitment is Ngee Ann College.

It has to be remembered, however, that a large number of students at both universities are not Singapore residents, and though this situation is changing, at the moment it must certainly be taken into account. Thus, of 306 graduates from the University of Singapore in 1963 (omitting science graduates who stayed on to read for honours, and who were thus unavailable for employment) only 175 were domiciled in Singapore: similar figures for Nanyang were 405 and 146. The total output of graduates domiciled in Singapore in this year is shown in Table 29.

The outputs of the two universities were projected until 1970 by the Commission of Inquiry into Education in Singapore[2] on the basis of low and high future enrolments. To the lower or upper totals shown in Table 30 would have to be added a figure for the Polytechnic output of gradutes, which it may be assumed will at least have been doubled to 112 by 1970, and possibly an output of some 75 graduates from Ngee Ann College: this gives total outputs of 1,130 to 1,205.

Working on the basis of a stock of 11,000 Category I personnel shown in the 1957 Census, Guy Hunter calculated that an output of 1,430 would be needed by 1967, and this, on the same projection would rise to 1,770 by 1970. On this assessment the deficiency of 565 would have to be made up

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[1] See below, p. 458.

[2] *Report*, op. cit., pp. 114-17.

TABLE 29. Singapore: total output of graduates domiciled in Singapore

	Arts	Law	Science	Engineering	Architecture and building	Accountancy	Commerce	Medicine[1]	Total
University of Singapore	80	21	41	—	—	—	—	33	175
Nanyang University	75		56	—	—	—	15	—	146
Polytechnic	—	—	—	27	5	24	—	—	56
									377

1. Including dentistry and pharmacy.

from the best of the Category II personnel available, together with returning graduates. No definite figures are available, but in 1960 a Unesco study[1] shows a total of 2,487 students from Malaya and Singapore in universities overseas (including 1,660 in Australia, 288 in the United Kingdom, 259 in the United States and 220 in India). The total number of students abroad at all levels is, of course, much greater; there were 1,300 students from Singapore alone in Australia in 1960, 5,000 from Malaya and Singapore in the United Kingdom, 1,200 to 1,800 in New Zealand, over 500 in the United States, and considerable numbers in India and Taiwan.

It may be concluded that with the expansion at present contemplated at the University of Singapore and Nanyang University, and with the development of Ngee Ann College, the supply of high-level manpower should not be a major anxiety, though it appears likely that unless the proposed faculty of technology of the University of Singapore is rapidly and successfully established, the Polytechnic, even in its emergence as a technological university, will not be able to satisfy the full needs of industrial development.

It will, of course, be necessary to keep the situation under review, and a

TABLE 30. Projected output of graduates domiciled in Singapore from two universities, 1970

University	Arts	Law	Science	Commerce	Medicine, dentistry, pharmacy	Total
Singapore	166 / 207	72 / 89	176 / 224		92 / 103	526 / 647
Nanyang	86 / 92		133 / 168	98 / 111		317 / 371
						843 / 1 018

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[1] *Study Abroad* Vol. XIII, pp. 680-1 (Paris, Unesco, 1962).

Government Manpower Committee has been set up for this purpose, a task made no easier by the multitude of small industrial undertakings organized on a family basis. It appears, however, that the major difficulty is likely to be found at the second rather than the first level with the production of well trained but non-graduate teachers, technicians of all types, fully trained nurses, senior clerks and managerial staff for smaller concerns. The problem is one which must depend not only on the continued and rapid development of the first four years of secondary education, but also upon training-within-industry, apprenticeship schemes, and post-secondary vocational training. Applied training is already receiving considerable attention, not only in the Polytechnic's technician courses, but also in a variety of industrial training schemes developed or encouraged by the Economic Development Board. It will be necessary to ensure, through adequate teacher-educator provision, that the expansion of facilities does not bring in its train a lowering of standards.

It will also be necessary, with the increasing automation of light and medium industries, to pay particular attention to the production of foremen, supervisors, and clerical staff in the upper echelons of the third level. One new factory in Jurong, with a working strength of 750, considers at least 700 to be unskilled workers: the clerical staff are included in the remaining 50, together with 18 Filipino technicians. The problem of education for citizenship and training for employment runs throughout the educational system.

Indonesia

BACKGROUND

LAND AND PEOPLE

The Republic of Indonesia includes nearly 14,000 islands extending along the equator for over 3,000 miles from the south-western shores of Malaysia to Australia: 1,300 miles separate its northernmost tip from its southern extremity in the Pacific Ocean. While many of the islands are insignificant and only some 6,000 are inhabited, of which no more than half are of significance, three are among the largest in the world. Spread over a total area of nearly 2 million square miles, the archipelago has a land area of about 735,000 square miles: about 62 per cent of the total area, around 1.3 million square miles, represents the surrounding seas. Indonesia has international boundaries with Malaysia's States of Sabah and Sarawak in North Borneo,[1] Portuguese Timor, which forms the eastern part of this southernmost island, and Australian New Guinea in the east. The following eight islands or island groups comprise most of the land area and inhabitants of the country: Java and Madura, Bali, Nusa Tenggara, Sulawesi, Sumatra, the Moluccas, Kalimantan and West Irian.

With an estimated population of about 102 million[2] in 1963, Indonesia is divided into seven regions with twenty provinces and two special territories, the capital city Djakarta and the Sultanate of Jogjakarta. As shown by Table 1, most of the population is concentrated in less than one-third of the total land area, and reaches a particularly high density in Java and Madura, where the primate city of Djakarta alone has a population of some 3 million, giving a density of well over 13,000 per square mile.

While all of Indonesia is richly endowed with a fertile soil and with many

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[1] Hereafter the island as a whole is called Borneo, including Indonesian Kalimantan, the Sultanate of Brunei, and the Malaysian States of Sabah and Sarawak.

[2] Based on the 1961 Census figure of about 97 million with a 2.5 per cent annual increase in population.

TABLE 1. Population distribution and density, 1961 Census

Region	Population (thousands)	Area (square miles)	Percentage of total area	Density (per square mile)
Java and Madura (3 provinces and 2 special territories)	63 060	51 033	6.94	1 235
Sumatra (6 provinces)	15 740	182 859	24.87	86
Bali (1 province)	1 780	2 147	0.29	830
Nusa Tenggara (2 provinces)	3 770	26 275	3.57	143
Sulawesi (2 provinces)	7 080	72 986	9.93	97
Moluccas (1 province)	790	28 766	3.91	27
Kalimantan (4 provinces)	4 100	208 286	28.33	19
West Irian (1 province)	760	162 915	22.16	4
TOTAL	97 080	735 267	100.00	132

known and other unexploited mineral resources, in Java/Madura, Bali and Sumatra the soil is so fertile—enriched by volcanic ashes—that it has been said that a walking stick, leant upon during an exchange of greetings, may well begin to put forth foliage. And, indeed, the famed Raffelesia blossom of Sumatra measures no less than 36 inches across. But the full exploitation of this richness still largely remains a task for the future.

Currently the agricultural products of the country consist of rubber, copra, palm oil, quinine, sugar, tea, coffee, cocoa, spices—which at one time were the main produce and gave the archipelago the name of the Spice Islands—rice, maize, tapioca, sago, and tobacco. Petroleum, tin, bauxite, manganese and precious metals form the mineral wealth.

While Java, crested by a mountain spine rising from the coastal plain up to the height of 12,000 feet of the volcanic Gunung Semeru Peak, has some rubber and tea plantations, most of its population works on small garden-like holdings, cultivating rice, cassava, maize and fruit for local markets, and rubber, copra, tea, coffee and kapok for export. Here is the most industrialized part of the country, with an extensive network of communications, and substantial resources for hydroelectric power development as well as known deposits of oil, manganese and phosphates.

Sumatra, on the other hand, despite its massive mountains, running parallel to the coast, and vast swamps, is now the richest area in the country. It has the country's major rubber, coffee, sisal, tea and tobacco plantations, and the main proven reserves of oil. There are promising mineral resources of coal, iron, silver, gold and copper, and the rapid Asahan river, dropping 3,000 feet in 15 miles, offers the largest single potential source of hydroelectric power in the archipelago. Extensive areas of virgin jungle abound which have in part been used for land settlement programmes, but have in several cases been spoiled by wasteful shifting cultivation. Surface communications are undeveloped and most transportation is by river: air links, however, are increasing in importance.

Bali, studded with high volcanoes descending in long green slopes with deeply furrowed ravines and picturesque waterfalls, is almost excessively exuberant in its plant life: it has been beautifully cultivated.

Of huge Kalimantan,[1] much of the central area is mountainous, and between this and extensive swamps along the coast, there are large tracts of virgin forest and savannahs covered by sharp-edged alang-alang grass. Its timber has been partially exploited, some copra, rubber and pepper is grown and deposits of coal, oil and other minerals have been found, but it remains an area awaiting thorough exploration.

West Irian and Sulawesi are similarly mountainous or swamp areas still largely unsurveyed. Sulawesi grows rice and maize and some copra, coffee, copal, kapok and tropical woods. Finds of nickel, coal, asphalt and mica, suggest that there may be more to discover. West Irian, with the highest, perpetually snow-covered, mountain peaks in the region, remains almost completely undeveloped, though a little oil was found between 1936 and 1955. Apart from its mountains, it consists mainly of swampy jungles, of which the southern half are malarial.

Finally, while from the north of Sumatra, through Java and the southern islands, to the Moluccas there is a chain of volcanoes in varying degrees of activity, the eastern islands lie in a particularly dangerous seismic zone and are often subject to tremors.

The ethnic diversity to be found in Indonesia arises from the waves of migration which have flowed through the archipelago from prehistoric times. In the west the Malay type dominates, but towards the east increasing mixtures of Melanesian, Negrito and Papuan strains are found, and in the Flores-Timor area there is a profusion of various types, including modern examples of the ancient Australoid and the archaic Papuan. In addition, some 2.5 to 3 million Chinese constitute a strong commercial and professional community, and Indians, Arabs, and Eurasians form minority groups.

Linguistically, while nearly 250 languages are spoken, some 90 per cent of the population are native speakers of Malayo-Polynesian languages, of which Indonesian/Malay is a member and the official national language. Ten of the languages of this group again account for over 90 per cent of its native speakers, and together with Chinese (mainly Hokkien), as shown in Table 2, encompass the great bulk of the linguistic/ethnic grouping of the population.

Table 3 gives population growth projections, including separate school age-groups, for 1961-81, based on data calculated by the National Institute of Economic Research, Faculty of Economics, University of Indonesia.

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[1] Borneo as a whole is the third largest island in the world.

TABLE 2. Major linguistic/ethnic groups of the population

Group	Millions of inhabitants[1]	Main location
Javanese	45.0	Java
Sundanese	15.0	Java
Madurese	8.0	Madura
Indonesian/Malay	7.5	Sumatra and Kalimantan
Miningkabau	3.5	Central Sumatra
Balinese	2.5	Bali
Batak	2.5	North Sumatra
Makasar	2.0	Sulawesi
Bugis Achelinese	2+	Sulawesi North Sumatra
Chinese	2.5	Java and Sumatra
TOTAL	90.5+	

[1] Rough estimates of native speakers of the languages concerned taken from Richard Noss's work (Vol. III, Part 2).

TABLE 3. Population projections, 1961-81 (thousands)

Year	Age-group			
	All ages	6-11	12-14	15-17
1961				
Total	96 967	16 003.2	4 758.3	4 112.6
Female	49 040	7 923.4	2 279.5	1 980.2
1966				
Total	114 005	20 591.1	8 558.8	5 840.4
Female	57 490	10 285.4	4 254.1	2 836.0
1971				
Total	130 463	23 106.9	10 235.3	9 605.5
Female	65 812	11 433.1	5 115.7	4 802.2
1976				
Total	150 045	24 242.5	11 729.7	10 686.3
Female	75 472	11 938.8	5 791.6	5 324.1
1981				
Total	175 119	26 479.2	11 972.0	11 943.7
Female	88 116	13 101.3	5 894.4	5 883.7

THE SOCIO-ECONOMIC SITUATION

Although the name Indonesia was used for the first time only in 1850,[1] the cultural history of the nation can be traced back over many centuries. In A.D. 683 the Buddhist empire of Srivijaya, with its capital at Palembang in Sumatra, extended over much of modern Indonesia; and after its decline in the fourteenth century, the even larger empire of Modjopait, based in east Java (Singorasi) reunited the archipelago, under the premiership of Gadjah Mada (after whom the university in Jogjakarta is named) from 1331 to 1364, before it, in its turn, disintegrated toward the end of the fifteenth century. Thereafter, before the founding of the Dutch East Indies colonial empire—coming in the wake of the Dutch East India Company—the Portuguese made an appearance in 1509 and still rule the eastern part of Timor; and largely through the influence of Muslim traders from India, a number of Muslim kingdoms were set up between 1513 and 1528. Gradually Muslim traders spread Islam through most of the archipelago, and today about 90 per cent of the population is Muslim. Throughout the course of its history, Indonesia has shown a tolerant intermingling of religious and cultural influences: Hindu and Buddhist, intermingled from the earliest days; animist, from the original indigenous population; Christian; and Islamic.

The period of Dutch rule, before Indonesia achieved its independence first in 1945, after the Japanese occupation, and finally in December 1949 from the Dutch, was interspersed with repeated uprisings, and as late as 1906 and 1908 two Balinese princes led mass suicide charges in which their whole court died. Whatever may be said in evaluating the results of this period of foreign rule, it consolidated modern Western influence and, in embryo at least, laid the foundation of a Western type of educational system. In embryo, because it was in fact limited to very few—over 90 per cent of the population were illiterate in 1945—and largely designed to provide sufficiently trained junior civil servants for the Netherlands government.

On independence, Indonesia emerged with a host of social and economic problems and very few persons qualified to deal with them: there were little over a thousand Indonesian graduates in the country. Today, with additional political complications, the country is still struggling to find its feet and emerge from economic stagnation in a land of plenty.

Social organization and values

While Indonesia does have a series of big cities, with a number reaching populations of over a million, it remains a predominantly rural country with about 72 per cent of the employed labour force aged over 10 engaged in

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1. By James Richardson Logan, publisher of the *Journal of the Indian Archipelago and Eastern Asia.*

agricultural activities. With the exception of estates and plantations—now largely nationalized—land holdings are generally small, in Java and Madura averaging less than 1.5 hectares. With the exception of a very small minority of the extremely wealthy, there are no marked extremes of high and low living standards among the bulk of the population, even though an estimated 60 per cent of the total village population consists of landless peasants, and two thirds of those who own land have less than half a hectare.

The traditional system of village organization underwent a series of disruptive changes during the last hundred years, but it is still largely true that in both town and country many of the basic values evolved through centuries of intercultural influence continue to play a dominant role. On the positive side, there is the sense of communal responsibility and mutual assistance, which in planned objectives leads to an emphasis on developing modern co-operative enterprise from the tradition of *gotong rojong*;[1] the adherence to *Adat* (Custom) law, which goes beyond the usual meaning of customary law to include a whole way of life and human relationships; and the respect for harmony and the feelings of others which to outsiders often seems simply an unwillingness to risk unpleasantness even when principles are involved, but in fact can and does facilitate the village council's attempt to settle matters by concensus rather than by voting and to overcome disputes through long, involved but peaceful means. On the other hand, these same loyalties and attitudes mixed with local cultural traditions, economic aims and regional political rivalries, also tend toward the formation of joint fronts against centralized authority and control by directives. The call is for 'unity in diversity', but while Indonesian has been adopted as a national language with common agreement, within the country the Indonesian still tends to think of himself as a Batak, a Balinese, a Sumatran or a Chinese. Furthermore, modern influences have introduced a competitive, acquisitive attitude which is not restricted to cities and commercial life but extends to village communities, if not individuals. Each of these tends to make the most of the current inflationary trend for its own benefit. As the money economy is largely suspended, the possession of essential foodstuffs presents a barter advantage to peasants so long as the government finds it impossible or inexpedient to enforce established rates.

In regional terms, the main difficulties arise in the form of natural resentment against the complete centralization of authority in Java in general and Djakarta in particular, especially in Sumatra which has become the area which contributes the most important share of the nation's income. But these are internal dissensions which are quickly laid aside whenever it is felt or imagined that the nation is subject to any external threat.

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[1] Mutual assistance and co-operation, officially defined as 'The undertaking of tasks and the bearing of consequences together and the distribution of the results in keeping with the contribution made'—*Indonesia 1963, Looking Back Over the Year*, p. 70 (Djakarta, Department of Foreign Affairs, Republic of Indonesia, December 1963).

From the religious viewpoint, despite the fact that religious/political parties exist and some of these are orthodox, the country is fortunate in being largely free of religious intolerance. There is a substantial Christian population, about 6 million, mainly Protestant and concentrated in central Sumatra, among the Bataks, and in the eastern islands of Sulawesi and the Moluccas. A major proportion of the Balinese retain their own form of a Buddhist-influenced Hinduism and maintain a strongly aristocratic pattern of society. The Chinese, of whom only about 600,000 were not born in Indonesia, are mainly adherents of some form of Buddhism or Confucianism. The Bataks, who feel bound together by clan as well as religious ties, have played a significant role in government as well as in educational development and trade.

The Chinese have, inevitably, achieved a predominant position in commerce and the professions, and they maintain their own schools and language. This and the fact that many Chinese at one time held dual citizenship, led in the past to occasional outbursts of hostility from the rest of the population. In 1958 an agreement between Indonesia and the Chinese People's Republic provided for the abolition of dual nationality and those Chinese who wished to remain in Indonesia were obliged to give up their Chinese citizenship. However, continued demonstrations against them have shown that the basic problem of relationships remains.[1]

While, since independence, great progress has been made in the campaign against illiteracy, and the government today maintains that all of the younger generation are literate, according to the 1961 Census only around 47 per cent of the total population were literate, with progressively lower literacy rates for older age groups, from 72 per cent for the 10-14-year-olds to about 15 per cent for those over 65. There was also a marked difference between literacy rates in the urban and rural areas, about 67 per cent in the former and 43 per cent in the latter. The same type of difference existed between male and female literacy rates: about 47 per cent for males and only 34 per cent for women, though in urban areas as many as over 53 per cent of them were literate.

Although women constitute only about one-third of the enrolment in secondary schools, one-fourth of the enrolment in higher education, and show a markedly lower literacy rate, they have never been looked upon as holding an inferior position or suffered other serious curtailments of their freedom. On the other hand, while they have the right to vote and in some regions have been regarded as the head of the household, in villages generally women have not participated in community deliberations, and custom (*adat*) has demanded the observance of certain codes of social behaviour. In towns, women have also, much more than the men, retained the practice of wearing their national dress.

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[1] Renewed with great violence in 1966. Politics are not the only grounds for anti-Chinese feeling in Indonesia.

The general tempo of life is relaxed and leisure is much prized. But the civil servant's official working hours of 8 a.m. to 1 p.m., while posing a problem of efficiency, must not be mistaken to mean that there is a lack of responsibility. Both the shortage of highly qualified manpower and financial reasons of low salaries and rampant inflation oblige them to undertake other occupations in the afternoons and evenings, in many cases enabling them to earn four to five times their modest civil service pay.

The economy

Recent data on national income are not available; the last official estimate (given in the eight-year National Over-all Development Plan, 1961-69) being 236,000 million rupiah for 1960, i.e., about $5,244 million,[1] giving a *per capita* income of around $55. But on the basis of a series of inquiries on the subject, the Unesco Team[2] at the end of 1964 concluded that during the last three or four years the rate of growth 'could not have been more than 2 per cent annually'. This means that with a population increase of well over 2 per cent, the *per capita* income has been declining since 1960. This unfortunate situation seems to be confirmed by a general decline in production accompanied by galloping inflation. Production figures for major agricultural and industrial commodities are shown in Table 4. With few exceptions, the downward or static trend is obvious; and with the single exception of petroleum, as Table 5 shows, the value of exports also fell heavily during the same period. At the same time in 1964 owing to a shortage of imported raw materials and spare parts, large factories were generally reported to be working at less than 40 per cent of their capacity. The extent of the progressive inflation is also shown by the fact that taking an index of 100 for 1955 as a base year, the over-all consumer price index for Djakarta rose to 2,000 in January 1963 and the cost of living for middle-grade officials in Djakarta to over 7,000 in the second quarter of 1964.

Clearly such spiralling cannot go on indefinitely without increasingly serious economic repercussions, but the effects have been cushioned through further demonetization and greater use of barter in the village economy, the provision of special allowances (housing and transport) and subsidized commodities (e.g., rice, textiles and sugar) for civil servants, and the establishment of a complex variety of exchange rates for different categories of

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[1] At $1 = 45 rupiah.

[2] Unesco Regional Advisory Team for Educational Planning in Asia, *Long-term Projections for Education in the Republic of Indonesia*, p. 49 (Bangkok, November 1964).

TABLE 4. Production of selected major commodities in 1960/61 and 1963/64 (thousands of metric tons)

Commodity	1960/61	1963/64	Difference
		Annual output	
Agricultural			
Rubber[1]	639.6	582.0	− 57.6
Rice	13 151.0	11 764.0	−1 387.0
Copra	630.6	403.5	− 227.1
Maize	2 460.0	2 391.0	− 69.0
Palm oil[1]	140.4	148.8	+ 8.4
Sweet potatoes and yams	2 670.0	2 998.0	+ 328.0
Cassava	11 376.0	11 351.0	− 25.0
Tobacco	75.0	80.3	+ 5.3
Tea[1]	44.4	38.4	− 6.0
		Monthly averages	
Industrial			
Petroleum[1]	1 716.0	1 760.0	+ 44.0
Tin-in-concentrates[1]	1 914.0[2]	1 096.0	− 818.0[2]
Tin metal[1]	167.0[2]	152.0[3]	− 15.0[2]
Cement	32.3	42.6[4]	+ 10.3
Cotton fabrics[5]	5.4	5.0[4]	− 0.4
Coal[1]	55.0	49.0	− 6.0

All figures abstracted from *Economic Survey of Asia and the Far East, 1964* (Bangkok, United Nations, 1965).

1. Data for 1960 and 1963.
2. Tons.
3. Estimate.
4. 1962.
5. Millions of metres.

TABLE 5. Value of principal exports: monthly averages (millions of rupiah)

Commodity	Value		
	1960	1963	Difference
Petroleum and products	827.9	1 007.8	+179.9
Rubber	1 414.6	918.5	−496.1
Tin ore	204.0	70.9	−133.1
Tea	104.0	66.7	− 37.3
Copra	127.2	66.3	− 60.9

imports and, of course, for the tourist trade. Against the official exchange rate of $1=45 rupiah, the special exchange rate in 1964 ranged from Rp.250 to over Rp.500, but the illegal rate rocketed to Rp.4,500, from the year's first quarter rate of Rp.1,800, before stabilizing at Rp.3,000 at the end of the year.[1] Monetary and fiscal measures to turn the tide largely foundered on the unstable political situation created by the 'confrontation' between Indonesia and Malaysia over the disputed Borneo States of Sabah and Sarawak, and the general conception of Malaysia.

While President Soekarno's Economic Declaration of March 1963 gave top priority to the development of agriculture and food production, the current situation has shown no improvement and only emphasizes the need for greater and more effective efforts. Apart from lack of improvement shown by the production figures given in Table 5, it is also true that outside Java, little over 10 per cent of arable land is under cultivation; that none of the estates has regained its pre-war level of planted area and production and that close to half of all rubber trees are near the end of their productive period. Despite firm resolves to become self-sufficient in food—and in particular, to stop the annual import of around one million tons of rice by 1965—it is most unlikely that it will be possible to meet this target.[2] A series of land reform laws enacted in 1960—designed to reduce large land holdings among a mere fraction of the population and ensure more equitable tenant[3] and landowner relationships—have not been effectively implemented: in June 1964 there was a protest uprising by Javanese peasants.

Proposals were made to remedy this situation in the Economic Declaration: extension of the areas of cultivation and transmigration to these areas from Java; intensifying agriculture through improvement of methods, including mechanization as well as tillage, irrigation, fertilizers, selected seeds and pest control;[4] more effective execution of the land reform laws. All this requires wide-scale extension work supported by research and an adequate supply of trained manpower, in addition to capital investments in irrigation development,[5] fertilizer production and agricultural credits.

The first plant to produce about 100,000 tons of urea fertilizer annually has been completed at Palembang, Sumatra, and construction on a superphosphate factory, with an annual capacity of 100,000 tons, has been started

1. In day to day terms, the following illustrations characterize the situation: a kilo of rice in the free market during the first quarter of 1964 cost twenty times the subsidized price of Rp.10; the cost of a bicycle amounts to about twenty months' salary of a senior civil servant.
2. Toward the end of 1965 serious food shortages began to be reported.
3. About 60 per cent of the entire village population in 1960.
4. Despite its rich soil Indonesia has a low per hectare productivity, in the case of paddy only about 1.8 metric tons.
5. In west Java, one large hydroelectric scheme, Djatiluhur, is nearing completion, work has started on another, smaller scheme, and a number of irrigation projects in east Java are being implemented: together these are to irrigate over 300,000 hectares.

at Tjilatjap, central Java, with Soviet assistance, but even at full capacity, these would meet less than half the anticipated requirement of 465,000 tons by 1966/67.

In industry, the Economic Declaration emphasized the importance of developing the private sector, but attempts to provide new incentives and facilities have apparently had little effect. In 1964/65 it was estimated that there were some 80,000 people's industries throughout the country, but most of these must be small handicraft enterprises, because official figures for 1963 give the following data on industrial plants: employing 250 or more workers: 251; 25 to 150 workers: 3,257; 25 or fewer workers: 7,142; total 10,650.

The development of planned State enterprises has made some progress, but those in operation suffer from the same over-all economic difficulties. It is proposed to put at least one foreign-aided project into operation each year, including a steel plant in 1966, a paper factory and a cement factory in 1967, three shipyards in 1968, a steel and an aluminium plant in 1969. In terms of actual output the only really encouraging activity is the production of cement, which rose to over 550,000 tons in 1963, to which a new factory should soon begin to add another 50,000 tons. With the new paper factories in operation by 1968, it is expected to raise the current 11,400-ton production to about 65,000 tons per year, meeting about 65 per cent of total basic requirements. A tyre factory was expected to fill its target of about 84,000 tyres for 1964. In the textile industry, the number of spindles is being increased from 235,000 to 500,000 to supply more cotton yarn; but meanwhile shortages of yarn have reduced the weaving industry to under 30 per cent of its original capacity, and the country is obliged to import around 121 million metres of cloth annually.

As shown in Table 5, among minerals only the production of oil has registered an increase since 1960; and in 1963 foreign oil companies under contract began to prospect several thousand square miles in Sumatra and Kalimantan. While coal production has in recent years not exceeded 600,000 tons, experts indicate that the mine at Bukit Asam could put out 2 million tons annually if modern equipment were employed. Various contracts for developing outputs of tin, nickel, bauxite and gold have been entered into with foreign governments and private firms.

The total installed capacity of electric power in 1962 amounted to 359,000 kW and projects to increase this to 582,000 kW by 1966 have been undertaken, with various forms of foreign assistance, in different parts of the country. In particular when the power plant at the Djatiluhur dam comes into operation, it should gradually achieve its full capacity of 700,000 kW. Construction of another plant, with a capacity of 320,000 kW, was due to start at Asahan, Sumatra, in 1965 with Soviet assistance, and the dam for this would also provide irrigation for about 320,000 hectares of land.

Poor road and rail transportation and ineffective shipping facilities, operating at less than 50 per cent of capacity, have added to other difficulties, but while some improvement of highways is in progress, top priority has been given to a crash programme for rehabilitating rolling stock, involving a total order of over 6,000 units from various countries.

The infrastructure for industrial development and economic expansion is certainly being laid, but the very heavy expenditure on the preservation of law and order and the armed forces—for the early 1960's estimated at 'no less than 70 per cent of the national economic effort . . .'[1] is a crippling drain on the economy.

Machinery of government and planning[2]

Between 1950 and August 1964, there have been a number of changes in the constitutional structure of government and its various organs, partly because of political reasons, but also to achieve greater efficiency and co-ordination. In August 1964, both the People's Consultative Assembly (MPR), constitutionally the State's highest authority, and the House of People's Representatives (Parliament—DPR) continued to be no more than provisional bodies set up for a transitional period. Elections, first and last held in 1955, had been postponed pending political stabilization, and the President of the Republic, elected for life by the MPR, had the power to appoint members to both bodies on the advice of his Supreme Advisory Council, comprising a select body of people referred to as 'a kind of "brains trust" for the President'.

The President, who also acts as the Prime Minister and Supreme Commander of the Armed Services, is assisted by a Presidium of three vice-prime ministers heading a council of co-ordinating ministers of government compartments or authorities, which is also referred to as a Cabinet of Ministers. There are ten compartments: Foreign Affairs and Foreign Economic Relations; Legal and Internal Affairs; Defence, Security; Finance; Development; Agricultural and Agrarian Affairs; Distribution; Public Welfare; Educational and Cultural Affairs; Public Relations. With the exception of the Foreign Affairs Compartment, all others comprise several subordinate ministries with specific responsibilities, e.g., under Educational and Cultural Affairs, separate ministries for Basic Education and Culture, Higher Education and Sciences, and Sports. Interestingly enough, however, the Ministry of National Research is part of the Development Compartment. In addition to the 'Minister Co-ordinators' of each of these compartments, there are two with special over-all responsibilities—National Development Planning and Finance—and six high officials with the same rank, the chairman of the House of Representatives, the vice-chairman of the Supreme Advisory Council, and four vice-chairmen of the People's Consultative Congress. All are members of the Cabinet which is directly responsible to the President. At the provincial level governors are also appointed by and are directly responsible to the President.

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[1] *Indonesia 1963, Looking Back Over the Year*, op. cit., p. 94.

[2] It has not proved practicable to extend this section to cover the recent (1966) constitutional crises in Indonesia.

The Minister for National Development Planning is assisted by an Advisory Committee on National Development and Planning (MUPPENAS), comprising ministers, governors and community representatives appointed by the President. This advisory body relies on a Technical Agency for National Development and Planning (BAPPENAS), which also acts as its secretariat and consists of ten technical bureaux including one for perspective planning and one for evaluation studies. BAPPENAS maintains co-operative relations with the National Economic and Social Research Institute (which in turn relies for much of its research work on university faculties of economics and social sciences) and the Directorate of Science Administration, of the Ministry of National Research, which in 1964 was engaged in carrying out an extensive manpower survey to project requirements for 1970-80.

The current Eight-Year Plan, 1961-69, however, was drawn up by a National Planning Council set up by presidential decree in 1959. Its membership of eighty-one included representation from the different regions of the country and from various functional groups, but its tasks have since been taken up by the new bodies.

Finally, there are a number of other consultative bodies, set up or reorganized in accordance with need including a Supreme Operational Command and a Supreme Command of Operation Economy. The first is intended to direct all kinds of social and political as well as military drives required for the implementation of 'revolutionary objectives', especially those that may be of an emergency nature. The second concentrates on organizing similar drives in the economic field. They both work in collaboration with the relevant ministries.

Over-all development plans

The current Eight-Year National Over-all Development Plan, 1961-69, is Indonesia's third essay at planning. An Economic Urgency Programme was adopted in 1951 and a more ambitious Five-Year Plan was drawn up for 1956-60. As inflation and political instability resulted in much of the proposed developmental investment being drawn away into financing operational requirements and many of the projects were left incomplete, if not untouched, most of these were incorporated in the project list of the Eight-Year Plan.

In general terms, apart from philosophical pronouncements about Indonesian socialist ideals (as distinct from others), this last plan aims to establish a just and prosperous society; to provide sufficient food, clothing and housing for all; to ensure adequate health, education, employment, and proper care of the aged; to develop the cultural and spiritual life of each individual; and to contribute to human progress and happiness throughout the world.[1] Having announced these impressive aims, the plan not only stresses that it is laying the foundation for more comprehensive and better plans to follow, when more skills and more efficient organization become available, but also that its formulation has suffered from serious deficiencies of 'statistical data on population, finance, manpower, natural resources and production while those available are not reliable enough'.[2]

Although the plan is mainly an itemization of projects that it is considered desirable to carry out in various major fields, rather than a design guided by macro-economic considerations, it does also propose (a) achieving a minimum investment of 13 per cent of national income with an assumed incremental capital/output ratio of 5.3; (b) raising *per capita* annual income by at least 12 per cent within the plan period;[3] and (c) ensuring an adequate agricultural and export earnings base for industrialization, which is characterized as 'the goal'. It is said that 'the agricultural sector must be exploited so as fully to meet the daily needs of the people, and to finance the development of industry'.[4]

The text of the plan, completed in less than a year, comprises nearly 5,000 pages divided into eight parts, seventeen volumes and 1,945 paragraphs—apparently to symbolize August 1945, the date of Indonesia's first proclamation of independence.[5] In substance it consists (with some useful statistical background tables, especially for higher education) of 335 'A' projects intended to contribute directly to national development, eight 'B' projects expected to provide basic finance for the 'A' projects, and six operational 'B' projects related to servicing and achieving full effectiveness for the other eight.

Although the plan uses estimates of national income varying from Rp.206,000 million to Rp.236,000 million for the base year 1960, the latter figure (giving a *per capita* income of Rp.2,500) is favoured and forms the basis for establishing a total minimum developmental expenditure of Rp.240,000 million over eight years. At the proposed 13 per cent of national income rate of investment (discounting increments in national income over the eight-year period), more than Rp.30,000 million should be available for investment each year, thus totalling over Rp.240,000 million in eight years. However, in

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[1] *Broad Outlines, National Over-all Development Plan, 1961-69*, p. 12 (Djakarta, National Planning Council, Republic of Indonesia).

[2] ibid., p. 13.

[3] There is an apparent inconsistency here: the investment and capital/output ratios suggest an annual economic growth rate of about 2.4 per cent, which with population growing at 2.3 per cent per year, would amount to a *per capita* annual increment of around 0.1 per cent, whereas a total 12 per cent increase over eight years would of course require a *per capita* growth rate of about 1.4 per cent.

[4] *Broad Outlines* . . ., op. cit., p. 30.

[5] It may have been noticed that in Indonesia there is a consistent Brahmin preoccupation with numbers.

TABLE 6. 'A' projects by category and investment allocations

Category	Number of projects	Allocation (in Rp.1,000 million)	Percentage of total investment	
Mental/spiritual:				
(a) Culture	9	1.6	0.6	8.5
(b) Education	43	16.3	6.8	
Research	16	2.6	1.1	
Public welfare	11	6.2	2.6	
Government (administration)	6	3.6	1.5	
Special project (military)	1	30.0	12.5	
Production:				
(a) Food	8	25.1	10.5	45.1
(b) Clothing	7	28.9	12.0	
(c) Industry	81	52.0	21.7	
(d) Health	6	2.2	0.9	
Distribution, transport and communications	144	60.2	25.1	
Finance and tourism	3	11.3	4.7	
TOTAL	335	240.0	100.0	

calculating finance for the project in terms of 50 per cent in foreign exchange and 50 per cent in local currency, the plan finds that the yield from the 'B' projects shows a deficit of $237.5 million, and the 'B' projects themselves—apparently even without counting any investment expenditure for these—involve a further deficit of Rp.100,583 million. At the official rate of exchange used by the plan ($1 = Rp.45), these deficits amount to a total of nearly 50 per cent of the proposed investment (i.e., Rp.111,270 million). This it has not very clearly been assumed should be met by foreign loans (aid is looked at askance) and investment.[1] Quite obviously subsequent events have not sustained much of this optimism (though considering how much foreign investment is still taking place, not only from socialist countries but also several others, it might under more stable political conditions have been nearly if not fully realized).

Among the 'A' projects, as shown by Table 6, priorities and emphases are indicated both by the number of projects in a main category and by the proportion of the total proposed investment allocated to it.

The number of projects for food and clothing is relatively small, but their allocations more than make up for this, surpassing the industrial provision.

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1. It is reported that an Indonesian official requested to explain the situation said, 'We have to do nothing. Foreigners will invest.'—Guy J. Pauker, 'Indonesia's Eight-Year Development Plan', *Pacific Affairs*, Vol. XXXIV, No. 2, Summer 1961, p. 120.

On the other hand, the importance given to education and research is emphasized more by the number of projects it is aimed to establish than their proportional investment. Indeed, even in terms of the latter, education comes a close second to food. Research had not been specifically provided for in the previous two plans, and the proposed specific investment signifies the importance attached to creating national research centres and co-ordinating as well as centralizing meagre resources of research personnel and equipment.

Apart from industry, the heaviest priorities go to defence and distribution, which while perhaps not a happy circumstance from the developmental viewpoint, is a reflection of disturbed political conditions and the need to assure a sound infrastructure of communications for any development to take place. All in all, the balance of allocations is not bad; what has become increasingly alarming is that at constant 1960 prices there appears to be little possibility of coming anywhere near the targets, and yet a multitude of projects have been and are being started without any assurance of their completion or satisfactory operation. As indicated below (pp. 531-5), the most critical situation in this respect faces education, and higher education in particular.

THE EDUCATIONAL SYSTEM

The current system of education comprises six years of universal, compulsory primary education, two cycles of secondary education, each of three years, and then from three to six years to a first degree or diploma. The official entrance age to a primary school is 6 years, but in fact most children first enrol when they are between 7 and 8 years old.

Both lower and upper secondary cycles include general and vocational/technical types of education, the latter covering technical, commercial, home economics and other specializations. Teacher training, which until 1959 was also given at the lower level, now starts only at the upper secondary stage. In addition to secondary education proper, a number of community classes have been started in rural areas, which offer one- to three-year vocational training courses for pupils who have completed their primary education.

The lower general secondary school (*sekolah menengah pertama*—SMP) provides a common basic education, specialization in the third year having been abolished after 1959. The upper general secondary school (*sekolah menengah atas*—SMA), formerly divided into three sections, now has four divisions or 'sides' in the final two years, following a common basic year. The four divisions, which it is intended should be provided in all general upper secondary schools—in the past many schools specialized in one or two courses—consist of the humanities, social sciences, mathematics, and natural sciences.

Entrance to higher education thus requires a minimum of twelve years of schooling, and a full degree qualification (*sardjana*) generally requires five years of study. A preliminary qualification, sometimes referred to as a bachelor's degree in English (*sardjana muda* or *bakaloreat*) may be awarded after three years of study, but with few exceptions this appears to be an interim rather than a terminal qualification.

It is estimated that about 36 per cent of primary school graduates enter lower secondary schools, 60 per cent of the graduates of these schools go on to the upper secondary stage, and about 56 per cent of secondary-school graduates obtain admission to some form of higher education. Actually, because of drop-outs and retention, the thinning of enrolments through each stage of education—particularly from primary to lower secondary—is even greater than these percentages would suggest (see pp. 483-4). While some provision for transfers from one to another type of education is made, especially from general lower secondary to vocational upper secondary, as a rule the student continues to follow the field of training he first selects.

Indonesian is used as the medium of instruction at all levels of education throughout the country, but in the first three grades of primary school the local vernacular is also used and a number of private schools do some teaching in Chinese. English is a compulsory language subject through secondary education.[1] Comprehension of spoken English as well as some fluency in reading are the general objectives, while in the last two years emphasis is given to vocabulary suited to the field of specialization. However, shortages of trained language teachers and insufficiently developed techniques of teaching leave most students with a mere smattering of the language, and when admitted to the university, they generally have considerable difficulty in following English-language textbooks and lectures.

The administration and finance of education is complicated. Public primary and secondary schools are both generally controlled and inspected by the Ministry of Basic Education. But in the case of primary schools, finance, staff, and all matters pertaining to land, buildings and equipment are the responsibility of the Home Ministry. At the secondary level various vocational schools are under the control of other ministries, e.g., all agricultural secondary schools are under the Ministry of Agriculture, but their number and enrolments are not large, and they are for the most part designed to supply specific government manpower requirements. State universities are strictly controlled by the Ministry of Higher Education and Sciences; but specialized academies with three- to five-year courses are maintained by some twenty different ministries as a source of staff recruitment.

Except for religious schools, all private education, including primary and secondary, is subject to inspection and control by the Ministry of Higher Education and Sciences. Private schools at all levels may be fully or partially subsidized by the government or depend entirely on support from private sources and/or fees from students. The Islamic schools, known as Madrasah, are supervised and in many cases financed by the Ministry of Religious Affairs, and at the primary level 20 to 50 per cent of their curriculum is devoted to religious instruction. However, their pupils, like those of other private primary schools may sit for the State examination at the end of grade 6 and then take the entrance examination for public lower secondary schools.

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[1] For the first two years, for four hours per week; for the next two, three hours per week; and for the last two, four hours per week in the humanities division, three in the social sciences, and two in the mathematics and natural sciences divisions.

Final and entrance examinations for each stage of public primary and secondary education are, with few exceptions (e.g., agriculture) conducted under the supervision of the Ministry of Basic Education, and any student wishing to transfer from a private to a public institution must pass the relevant examinations.

Both the Ministry of Basic Education and the Ministry of Home Affairs maintain local administrative offices in twenty-two provinces and special territories. On an average, each province is divided into ten regencies, each of which is subdivided into five districts, twenty sub-districts and 200 villages, with a total population of around 500,000. The Ministry of Basic Education is in charge of the supervision of school instruction, and its regency inspectors, of whom each is supposed to be responsible for thirty schools, are themselves supervised by central government inspectors. The second ministry is in charge of the appointment of teachers and assistance in the establishment and maintenance of schools, for which local districts also make substantial contributions,[1] on the basis of budgets and subsidies allocated by the Central Home Ministry.

For secondary education other than that under the control of another ministry, the provincial branch of the Ministry of Basic Education and Culture has full responsibility under directions from the centre. This ministry also operates three academies: for fine arts, for music, and for ballet.

Universities and other institutions of higher education, excluding ministerial academies, are under the direct control of the Ministry of Higher Education and Sciences, but within the limits of general regulations and directives both universities and their faculties have a considerable degree of autonomy.

The variety of central agencies dealing with primary and secondary education and, in so far as academies are concerned, also with higher education, make it difficult to obtain a comprehensive view of education and to plan and promote its development in a coherent way. Currently available educational statistics leave much to be desired: time series of enrolments, graduation, and staff are generally incomplete and much of the data obtained or

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[1] Since 1958, the share of the government has been to provide the teaching staff, a limited number of school supplies, and some assistance bearing on buildings and equipment, while the community concerned has to supply the school building and playground, a plot of land for various activities, equipment, and accommodation for teachers.

TABLE 7. Public and private enrolments by level and type of education, 1961/62

Level and type	Public	Private	Total	Per cent private	High total estimate
Primary (1-6)	8 618 000	1 025 000	9 643 000	10.6	12 146 800
Secondary					
Lower (7-9):	389 000	241 000	630 000	38.3	694 000
General	252 000	212 000	464 000	45.7	539 800
Vocational	137 000	29 000	166 000	17.5	154 000[1]
Upper (10-12):	121 000	92 000	213 000	43.2	245 800
General	58 000	62 000	120 000	51.7	119 700[1]
Vocational	28 000	12 000	40 000	30.0	126 100
Teacher training	35 000	18 000	53 000	34.0	
Higher	76 700	20 500	97 200	21.0	107 300
TOTAL	9 204 700	1 378 500	10 583 200	13.0	13 193 900

1. These lower estimates are not explained.

collated from different departmental sources of information present inconsistencies. The figures that follow must therefore be viewed with caution.

Enrolments in public and private institutions for 1961/62 show that while the latter play a significant role, the public sector is predominant. Table 7 gives a breakdown of 1961/62 enrolments by levels and types of education for institutions on which data were readily available. Higher estimates for total enrolments which the Unesco team collated on the basis of information from a variety of sources, including several ministries and various departments, are given in the last column. If it is assumed that at least in primary education the figure for enrolments in public schools is correct, the high estimate would suggest that private enrolments form a significantly higher proportion of total enrolments—about 29 per cent instead of 10.6 per cent.

Apart from the fact that, as is to be expected, private enrolment forms a much larger percentage of total enrolment in secondary general education than in other areas, it is also to be noted that by far the larger proportion of secondary enrolment is in the general division (69.3 per cent); but that this is reduced from 73.7 per cent for lower secondary to 56.3 per cent for higher secondary.

Table 8 shows a very rapid increase in enrolments between 1954/55 and 1962/63, with a concentration on higher levels of education that reaches a growth of nearly six-and-a-half times for higher education enrolments. This is all the more remarkable when it is remembered that in 1940 enrolments amounted to no more than 2 million in primary, 14,200 in secondary, and 1,700 in higher education. Thus rapid expansion, started with independence,

TABLE 8. Increases in enrolments by level, 1954/55 to 1962/63

Level and type (grades)	Enrolments[1]		Indices for 1962/63 (1954/55 = 100)
	1954/55	1962/63	
Primary (1-6)	7 034 000	10 576 000	150
Secondary[2] (7-12)	358 500	817 100	228
General	263 800	595 800	226
Vocational[2]	94 700	221 300	234
Higher	21 000	136 000	648

1. Do not include enrolments in certain special schools under various ministries other than Basic Education and Higher Education and Sciences.
2. Includes teacher training at the upper secondary level, but not in lower secondary, where it was abolished in 1959, and excludes all private vocational and religious school enrolments. In 1954/55, there were 138,000 pupils enrolled in lower secondary teacher training.

has raised 1940 enrolments by 5 times in primary, 58 times in secondary, and 80 times in higher education.

The figures also indicate that, while the proportion of vocational secondary education remains only a little over a quarter of all secondary education, its growth has been slightly greater. Indeed, if one takes upper secondary level, the indices (1954/55 = 100) for 1962/63 rise to around 603 for vocational/technical education and 325 for teacher training as against 265 for general upper secondary education.

On the other hand, it has also been generally recognized in Indonesia that this rapid over-all quantitative advance has involved some sacrifice of quality, since sufficient qualified teachers have not been available and educational finance has not been sufficient to meet basic needs of educational equipment and materials.

Primary education

While some 54.8 per cent of the 7-13 age-group were in primary school in 1961/62, proportions in relation to the 6-11 age-group, according to the high estimate (Table 7), rose to 75.9 per cent. But there were clearly a large number of over-age pupils, as between 55 and 60 per cent of the 12- and 13-year age-groups were actually in school. Until recently drop-outs are estimated to have been high, so that roughly only about 45 out of an original 100 in grade 1 reached grade 6, but officials believe there has been a distinct improvement since 1963.

The government adopted an eight-year compulsory education plan in 1961/62 designed to be implemented by 1968/69, but with current economic difficulties it appears likely that this target date will have to be postponed—possibly to 1972/73 or even later.

Through a crash programme of teacher training, the teacher/pupil ratio in public schools has been improved from around 1 : 60 in 1952/53 to 1 : 41 in 1962/63, although there are still a number of schools, particularly in the private sector, where it is thought that this ratio remains in the order of 1 : 60-70. Furthermore, most of these teachers have been trained during the 1950's in four-year lower secondary courses (grades 7-10). To improve their quality, efforts have been made to provide intensive in-service training, and since 1959 primary school teacher training takes place at the upper secondary level.

Another serious problem in maintaining the quality of primary education arises from the acute shortage of textbooks and other educational materials of even the simplest kind. The scarcity of textbooks is partly due to a shortage of paper, but in general the situation is the result of the very inadequate budgetary provision of about 3 per cent of the total recurring budget—the rest going to meet teachers' salaries, which themselves are low enough. In *per capita* terms this means that no more than an annual 24 cents per pupil are available to meet non-salary recurrent expenditure.

Secondary education[1]

Despite the noted rapid advance of secondary education, this had by 1963/64 only succeeded in bringing the proportion of the secondary-school-age population in school to around 10 per cent, with lower and upper secondary proportions ranging around 13 and 7 per cent respectively. Thus, although enrolments in secondary education have grown faster than in primary education, only about 36 to 37 per cent of grade 6 pupils are estimated as going on to a lower secondary school. The proportion of girl pupils was significantly lower than in primary school: around 35 per cent of total enrolment at the lower secondary and 27.5 per cent at the higher secondary level.

A very large proportion of staff consists of part-time teachers, not only in the sense that they have additional responsibilities, but also that, in many cases, teaching is a secondary or tertiary occupation in terms of time and effort spent. Teacher/pupil ratios can therefore not be used as a measure of the quality of the educational provision. On the other hand, as in primary education, school equipment and materials are generally very inadequate, especially for science and technical classes. To meet these needs in 1961/62 only 6 per cent of total recurrent expenditure was available for lower

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[1] Secondary education is here dealt with as a whole, since available data do not permit more detailed separate comment.

Table 9. Enrolments by grades, 1961/62,[1] public and private (thousands)

Grades	General		Technical/vocational[2]		Grand totals
	Total	Female	Total	Female	
Primary:					
1	3 474.3	1 587.1			
2	2 601.5	1 173.9			
3	2 173.7	957.2			
4	1 681.3	709.6			
5	1 259.4	514.8			
6	956.6	376.1			
SUB-TOTAL 1-6	12 146.8	5 318.7			12 146.8
Secondary:					
7	220.2	78.7	73.8	18.1	
8	174.5	61.7	54.0	14.9	
9	145.1	49.5	26.4	9.7	
SUB-TOTAL 7-9	539.8	189.9	154.2	42.7	694.0
Secondary:					
10	48.4	12.5	51.5	15.5	
11	41.0	10.4	39.6	12.0	
12	30.3	7.7	35.0	10.4	
SUB-TOTAL 10-12	119.7	30.6	126.1	37.9	245.8
Higher: 13-17+[3]	55.4[4]	...	41.7	...	97.1
					13 183.7

... Data not available.

1. Primary and secondary enrolment figures are taken from data collected and estimates made by the Unesco team; figures for higher education have been calculated from data obtained directly from various authoritative Indonesian sources of information. The latter total enrolment figure is 10,200 short of the URAT estimate of 107,300, including 2,400 in grade 17+. All figures are the results of collating data from various government sources, and are subject to error because of inconsistencies between them. However, they represent the best that could be done under given limitations, and should at least in broad terms give a fairly true picture. The same consideration, it should be stressed again, applies to other statistics in the profile.
2. Includes teacher training.
3. The URAT report estimated that in universities about 27 per cent of the general and 24 per cent of the technical/vocational enrolments were women students.
4. Includes enrolments in natural sciences.

secondary general and 20 per cent for upper secondary vocational, a *per capita* annual expenditure respectively of $1.30 and $13.

While, excluding teacher training, enrolments in vocational upper secondary education amount to about 28 per cent of combined general and vocational upper secondary enrolments, a major proportion of the vocational category includes enrolments in commerce, economics, and administration. In 1963/64, upper secondary enrolments in the technical field came to only around 14,000, and in agriculture to an estimated 3,200. Even without manpower surveys on which to base a proper assessment of needs, it is possible to say that these numbers must be far below the requirements of a country of Indonesia's size and population. The presumption is confirmed when these enrolments are compared with university enrolments in technology and agriculture, respectively amounting to 8,900 and 7,400 in 1964/65 at State universities alone. This obviously represents a serious imbalance, even when allowance has been made for the longer duration of studies at the university. Conscious of the problem, the government proposes to modify the ratio between secondary general and vocational education (including teacher training) from 76 : 24 to 30 : 70, and also to introduce vocational subjects in general secondary schools. Apart from the fact that this will involve major financial difficulties, since vocational education is estimated to require about double the recurrent expenditure allocated to general education (about three times at the lower secondary level), other factors will also need to be taken into account. Firstly, if adequate financial provision is not made, quantitative expansion is likely to prove an expensive failure. Secondly, it would be unfortunate if vocational expansion were to be concentrated on the lower secondary rather than the upper secondary level, which educationally is the desirable place for it. And thirdly, at the upper secondary level, increase in vocational enrolments without a general absolute increase may in time starve the universities of sufficiently qualified candidates for admission. The total enrolment in general and vocational grade 12 in 1961/62 came to around 65,000, and of this number less than 60 per cent were expected to pass their final examinations. If 30 per cent were left in the general education section, this would mean that, excluding higher technical and teacher training, no more than 12,000 candidates would have remained available for admission to other fields of higher education, and of these only a certain proportion would be suitably qualified. Indeed, in 1965 a large proportion of secondary graduates sitting for the University of Indonesia's entrance examination scored marks below 25 per cent, and whereas, for instance, there were 300 places in the Faculty of Economics, only 100 candidates were found to be fully qualified for admission.

THE EDUCATIONAL PYRAMID

The very sharp tapering of the educational pyramid—with percentages of total enrolment in primary 92.1, lower secondary 5.3, upper secondary 1.8 and higher 0.8—is indicative both of the considerable effort made to universalize primary education and of the greater effort required and difficulties encountered in developing the higher levels.

At the primary level, the figures indicate that the drop-out rate is highest between grades 1 and 2 and that they decrease somewhat from grade 4 to 6. Thereafter enrolments, as is to be expected, fall most sharply first from grade 6 to 7 and then from grade 9 to 10. But within each of these secondary levels, given rapid expansion, the enrolments appears to be fairly well balanced for general education, the sharpest drop of around 27 per cent coming between grades 11 and 12. However, in technical/vocational education, the grade 8 enrolment falls by nearly 50 per cent on entry to grade 9. This, apart from rapid expansion, is probably due to the fact that a number of two-year vocational training programmes have also been taken into account. The fact that the vocational grade 10 enrolment is larger than in grade 9 indicates that a number of general lower secondary graduates transfer to the vocational upper secondary section. But then, in the latter, drop-outs appear to be greater between grades 10 and 11 than between 11 and 12.

Female enrolments present a progressively declining percentage of total enrolments for each higher level of education: about 44 in primary, 34 in lower secondary, 28 in upper secondary and 24 to 27 in higher education.

HIGHER EDUCATION

STRUCTURE, ORGANIZATION AND ADMINISTRATION

While in the Srivijaya empire, as far back as the end of the seventh century A.D., a Buddhist university near Palembang, Sumatra—after which the new university established there in 1960 has been named—was a celebrated centre of learning, higher education in Indonesia in its present form is a very recent development. Between 1920 and 1924 three specialized institutions of higher education had been established in the fields of engineering, law, and medicine. In 1940, there were an additional six post-secondary institutions, including a college of agriculture in Bogor and schools of medicine and dentistry in Surabaja. Total enrolment at this time was just over 1,700, of which only 800 were Indonesians, and there was a total of 125 teachers. By 1964/65, there were some 184,000 students enrolled at 28 State universities, 22 teacher-training colleges, 179 private institutions of higher education, and 71 government academies.

Aims and objectives

As is the case with the other levels, higher education in Indonesia is conceived as helping to realize and promote the broad policies of State and the principles and objectives of national development. The 1961 Law 22 on Higher Education states in Article 2: the aims of the institutions of higher education will be (a) to form cultivated individuals with the spirit of Pantja

Sila,[1] and to contribute to the shaping of a just and prosperous socialist Indonesian society, both materially and spiritually; (b) to provide able, independent and conscientious educators; (c) to carry out investigations and give impetus to the advancement of scientific knowledge, culture and social life. In supplementary notes and explanations, it is added that: '... it cannot be forgotten that institutions of higher education are tools of the revolution ... maintaining and upholding the Pantja Sila and the Political Manifesto of the Republic of Indonesia mean not only that the progress of institutions of higher education and their teaching may not be in conflict with the Pantja Sila and the Political Manifesto, nor merely that they must be in accord with the basis and course of the State, rather it means that they must actively strive for these ideals and aims'.

At the same time, the Ministry of Education issued a statement of 'Seven Major Activities for the Development in Schools and Universities' (Sapta Usaha Tama),[2] and later, in October 1960, followed this up with the promulgation of Five Principles of Indonesian Education (Pantja Wardhana).[3] The five principles, providing the philosophy to guide Indonesian education at all levels, and the seven lines of action, indicating major opportunities for individual, family and community activities that should be encouraged by both schools and universities, are considered complementary. It is hoped through both to maintain intimate relationships between theory and practice, learning and living, school and society.

In March 1964, the Minister of Higher Education and Science, then Professor Tojib Hadiwidjaya, in an address at the Bandung Institute of Technology, stressed that a university must integrate itself with the people and society. He added that science should bring benefits to the people, and that research should not be conducted just for its own sake, but should be carried out for the advancement and happiness of mankind. The universities, whose services should not be confined solely to producing graduates, should aim at the development of a just and prosperous society.

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[1] The Pantja Sila (five principles) enunciated as the philosophical basis of the State, are, in its 1945 Constitution, stated to be 'Belief in the One, Supreme God; just and civilized humanity; the unity of Indonesia, and democracy which is guided by inner wisdom in the unanimity arising out of deliberation amongst representatives, meanwhile creating a condition of social justice for the whole of the people of Indonesia'—briefly belief in God, nationalism, humanity (or internationalism), democracy, and social justice. The 'Political Manifesto' formulated in August 1959 also rests on five basic principles referred to as USDEK: the 1945 Constitution (Undang Undang Dasar 1945); Indonesian socialism (Socialisme Indonesia); guided democracy (Demokrasi Terimpin); and the Indonesian identity (Kepribadian Indonesia).

[2] The seven activities are: reorganization of the structure and re-orientation of the activities of the Ministry of Education and Culture (later reorganized into the Ministry of Basic Education and Culture) and the Ministry of Higher Education and Science (see p. 472); art and sports activities; home gardening; saving deposits; cooperatives; community classes for literacy and enlightenment; and work groups for community development.

[3] The five principles of Pantja Wardhana are aspects of development: of love of the motherland, its culture, moral and spiritual values, and national aspirations; of the mind and intellect; of aesthetic appreciation and appropriate attitudes; of manual, technical and other skills; and of the body.

The autonomy and academic freedom of universities are in these ways subject to control and guidance by the government, but in practice efforts are made to adopt directives and regulations on the basis of collaborative consultations, and Law 22 states in Article 4 that the freedom of knowledge and freedom of teaching in institutions of higher education are recognized and guaranteed so long as they are not in conflict with the foundations and basic general aims of the State.

Types of institutions

There are private as well as public universities and other institutions of higher education. Under both categories universities are supplemented by specialized institutes or colleges (e.g., of technology and of agriculture), academies with specialized training functions, and teacher-training institutes and colleges. The government academies are under the jurisdiction of various ministries and mainly designed to meet their particular personnel training needs. They were originally intended to be temporary, but instead their number and enrolments have grown rapidly.

Higher teacher training until 1964 was provided under three different systems: university faculties of education with a full five-year degree course; teacher-training colleges with a three-year course; in-service evening training courses for two to three years (B I) and for four to five years (B II). In 1964, except for private teacher-training institutions, all three types of institutions were incorporated under a centralized Institute of Higher Teacher Training (IKIP) with four regional branches and twenty-two training units, including former faculties of education. The administrative change was made to promote the co-ordinated growth of higher teacher training under a unified administration, but the faculties are to maintain their academic links with the universities of which they were formerly a part.

In addition to these institutions, there are around sixty specialized research institutes of varying scope, and in October 1964 the Indonesian Scientific Research Council (MIPI), functioning under the jurisdiction of the Ministry of National Research, started to establish a National Research Centre. The centre is to comprise eight national institutes: Chemistry; Physics; Instrumentation; Metallurgy; Electro-technics; Economic and Social Research; Biology; Cultural Studies. National institutes already working in temporary premises, such as the Institute of Economic and Social Research, will shift to the centre when it is ready—according to plan by 1967, but in view of various new difficulties probably much later.

In accordance with Law 22, each university is ultimately to have four divisions—religion and ethics; culture; social sciences; exact sciences and technology—meanwhile each new university must, to begin with, have at least three faculties: two from physics, mathematics or biology; and one other. The planned faculties of the divisions, which later may be added to or in certain cases amalgamated, are: (a) religion and psychology (religion and ethics); (b) literature, history, education, and philosophy (culture); (c) law, economics, sociology, political science and commerce (social sciences); (d) biology, medicine, dentistry, pharmacy, veterinary science, agriculture, mathematics and physics, technology, geology, oceanography and oceanology (exact sciences and technology).

By 1963, nineteen universities had no more than 5 faculties each, five between 6 and 8, and two 10 and 15 faculties each. The ratio between arts and social sciences (not including teacher training), on the one hand (referred to as the 'A' faculties), and exact sciences and technology, on the other (referred to as the 'B' faculties), was 1:1.44 in State universities and institutes. According to plans for the development of science and technical faculties, this ratio was to be changed to 1:2 by the end of 1965, and thereafter, as soon as possible, to 3:7. In private universities the arts and social science faculties predominate—about 8:1 in 1961/62—and they are likely to maintain such a position, as much because of a shortage of science teachers as because of cost or other considerations. For State institutions, too, there are educationists who would rather see a 4:3 ratio or even parity; and it is in general recognized that even with an increase in the relative number of science faculties, the enrolments in the arts and social sciences will continue to be greater for the foreseeable future.

Apart from the five universities of Gadjah Mada, the University of Indonesia, Airlangga, Padjadjaran, Sumtera Utara, and also the Bandung Institute of Technology—all established between 1949 and 1954—the others are quite recent foundations. The older establishments, particularly the University of Indonesia, Gadjah Mada and the Bandung Institute, are looked upon as parent institutions with a duty to help in the development and staffing of the new foundations through appropriate affiliation and teacher-exchange programmes. Several of the new State institutions were formerly either faculties of the older universities or private universities.

The rapid growth in the number of institutions of higher education has also been influenced by the objective of having at least one State university in each of the twenty-two provinces and special territories of the country. Although all the older State universities are in Java and thirteen out of twenty-eight are concentrated in Java and Sumatra, a fairly wide spread throughout the archipelago has been achieved. On the other hand, it is clear that many of the new universities are actually no more than embryonic institutions suffering from serious shortages of staff and equipment. Indeed, with the limited resources available, the policy of setting up new foundations, irrespective of whether or not adequate provision for their needs can be made, may surely be questioned. Even now, it might be well to consider a concentration of resources to consolidate the more satisfactorily established new institutions.

Organization and administration

With the exception of the government academies, all higher education is supervised by the Ministry of Higher Education and Science. The Ministry is divided into three main sections with various bureaux, which in 1964/65 were in process of reorganization, but included a Bureau for Private Higher Education and a co-ordinating Bureau for Education, Instruction, Research and Social Service. The title, use and uniformity of university degrees is controlled by the Ministry and protected by law. All appointments of permanent staff and officers of a State university, except the president, must be approved by the Ministry on the advice of the university senate. The president or rector of a State university is appointed by the President of the Republic, on the recommendations of the Minister of Higher Education and Science, based on advice from the university senate, for a term of four years. Furthermore, Law 22 also stipulates that the organization of subjects of study, administration of general studies and examinations will be regulated by ministerial decree; that institutions of higher education will endeavour to provide 'guided study';[1] that both private and public institutions will offer the Pantja Sila and the Political Manifesto as subjects of study; that all teachers must maintain and uphold them; and that all public institutions will offer religion as an optional subject.

While government academies operated by other ministries remain under their jurisdiction for specialized and technical instruction, the Ministry of Higher Education and Science is charged with controlling their general education programme. In 1964, most of the 71 government academies were situated in Java, with 27 in Djakarta, 13 in Bandung, and 13 in Jogjakarta.

Recognizing the right of resident citizens to set up private institutions of higher education, Law 22 requires that within six months of foundation the Ministry must be presented with a notary act of the creation of the legal body which administers the institution concerned, its estimates, property or income, its syllabuses and a list of staff members, together with records of their qualifications and the classes they will be teaching. Since the passage of the law, the Bureau of Private Institutions of Higher Education has been supplemented by an Institute of Private Higher Education which makes recommendations on accreditation and financial support. While the membership and officers of the institute are appointed by the Minister, and it performs its duties in accordance with government regulations, the members include selected representation from private institutions.

The private institutions are, in accordance with their circumstances and with recommendations of the relevant bureau and the institute, grouped under the following categories: registered, recognized and equalized. In addition there are a number of 'candidate' institutions awaiting examination of their credentials. Students of registered institutions must take their final examinations at State universities; recognized institutions may set their own examinations under the direction and supervision of the Ministry; and equalized institutions are authorized to set their own examinations. Graduates of both the latter institutions have the same status as those from State universities. In 1964, out of a total of 179 private institutions of higher education, only 2 were equalized, 25 recognized and 60 registered, while 92 institutions were awaiting assessment.

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[1] See below, p. 493 ff.

The general pattern of individual university administration is that of a president or rector presiding over a senate, which he must consult at all times, both in matters of education and in matters of administration. The senate, whose membership includes deans of faculties and certain other senior university staff and whose secretary is the president's principal assistant in academic matters, is thus the chief policy-making body of the university. The executive council of the senate is in charge of implementing the policy decisions of the senate. In addition to the secretary of the senate, a university secretary is the chief financial and administrative officer. A number of universities also have a board of curators, or council of assistance, which assists in maintaining good communications between the university and the government and society. Generally composed of lay members, its functions are entirely consultative, and it meets when summoned by the university president. Law 22 further proposes that universities may set up internal committees with representatives from students, teachers and employees to assist with administration and social welfare. Faculties of universities continue to have a considerable degree of autonomy, and their deans are assisted by two or three deputies as well as a faculty board.

In the past, planning for higher education was co-ordinated—with only partial success—through an advisory Council of University Presidents[1] (State universities only) summoned by the Minister of Education, and by the Bureau for the Co-ordination of Higher Education of the former Ministry of Education and Culture. Since then, annual Conferences of University Presidents have also been supplemented by national meetings of faculty representatives to advise on problems and developments in their particular field. The 1963 Conference of Presidents, among other things, following up on recommendations made by experts as far back as 1958, proposed the establishment of a permanent inter-university organization (BKPT) to assist the Ministry of Higher Education and Science and the universities to achieve the stated threefold objectives (*tridharma*) of higher education: education and instruction;

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[1] On occasion also referred to as an Advisory Inter-University Board, which is misleading in so far as it suggests a permanent structure rather than a series of *ad hoc* meetings.

research; and public service. In addition it was suggested that it should also undertake to look after the interests and welfare of university staff members. The recommended structure of the organization, apart from a national headquarters with non-governmental as well as governmental representation, comprises special faculty and university committees responsible for maintaining continuous contact with the national BKPT secretariat.

Sources of finance

State institutions of higher education are almost completely financed from the national budget: universities and institutes through the Ministry of Higher Education and Science; academies through the ministries to which they are attached. Except for small entrance application and student union fees, all higher education fees were abolished in 1963. Before this, too, they had been quite nominal; in the case of Gadjah Mada, for instance, the 1961/62 fee income amounted to less than 2 per cent of the total budget. Thus there is a potential source of finance in the introduction of substantial fees together with exemptions and scholarships for appropriate individual cases. However, provincial aid—mainly in the form of land and auxiliary facilities—and private donations do in part help to meet development costs. One recent example of efforts to increase support from the private sector is the University of Indonesia's campaign to raise funds for its planned faculty of technology; towards the end of 1964 sufficient funds had been collected to start work on setting up its main buildings.

Private institutions of higher education are partially subsidized to an estimated 25 per cent of their total expenditure; but they also represent a substantial private contribution to the financing of higher education as a whole, in 1964/65 meeting the cost of educating about 16 per cent of the total enrolment. Apart from subsidies, which are granted only to non-profit institutions, the budgets of the private institutions are met through student fees, private donations, denominational support, and endowments.

Government grants to State institutions are made on the basis of *ad hoc* individual negotiations, covering no more than one year with instalments at half-yearly intervals. Some efforts to co-ordinate requests from faculties —which may be given separate allocations—have been made through the Conference of University Presidents, but apparently with little success. Further, in the current economic situation, block grants covering a longer period of time would still have to be drastically reviewed to keep pace with the movement of inflation. Nevertheless, in the past, recommendations have been made to set up a permanent university finance committee[1] which would work in co-operation with universities, an inter-university board, and the Minister of Finance as well as the Minister of Education (in present circumstances the Minister of Higher Education and Science). It was also suggested that, subject to annual reviews of estimates, financial needs and allocations should be projected for a quinquennium so as to facilitate planned development.

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[1] On the pattern of the Commonwealth university grants committees.

Allocations to private institutions of higher education—also made without any systematic co-ordination or criteria—are restricted to registered, recognized and equivalent institutions. The first generally receive assistance within the range of 10 to 25 per cent and the other two of 20 to 40 per cent of their total expenditure. In addition to financial subsidies, the aid may also include equipment and materials, buildings, teachers and administrative staff. Originally there was a tendency to give more help to institutions which had achieved relatively good standards; more recently greater attention has been devoted to an institution's need for support. The shift in policy is understandable and in so far as it helps to improve low standards welcome; but this may be dearly bought if the over-all result is the prevalence of a lower common denominator due to a decline in the performance of the better institutions, caused by the necessity to reduce per student costs.

General admission policies and procedures

Until recently there have been wide variations in the policies and practices of different faculties, each of which have taken their own decisions in these matters. In certain of them, particularly those for arts and social sciences, all graduates of the appropriate upper secondary curriculum have been admitted as a matter of right; in some, entrants have been selected on the basis of their upper secondary school record and their examination results; in others, entrance examinations of varying types have been introduced either as supplementary to the upper secondary record or as the sole criterion for selection. However, a number of factors have, at the same time, been making the need for greater and more co-ordinated selectivity increasingly evident: the overcrowding of numerous faculties; the high wastage rate—one estimate suggests that no more than 20 per cent of those admitted eventually go on to complete studies for a degree; the need for a better balance between enrolments in different faculties, as far as possible in line with national development requirements and employment opportunities; and the need both to maintain comparable standards and to help the student make a wise choice of faculty in accordance with his special gifts and interests.

In December 1958, on the instruction of the Secretary-General of the Ministry of Education, an inter-university conference was held at the Gadjah Mada University on 'The Principles Governing Tests for Admission to Schools of Higher Education'. Participants included representatives from upper secondary schools, the upper secondary inspection office and Ministry officials, as well as from universities; and some broad general agreements were reached. Finding that restriction of admission to the faculties was necessary, the conference suggested that selection might be made on the basis of final secondary examination results, the upper secondary record and the results of admission tests. It felt that while all such tests should evaluate the aptitudes, interests and personality of the candidate as well as of his knowledge in given subjects, and that while these should not repeat what should have been demonstrated by the upper secondary school examinations, they should be tailored to the specific requirements of faculties, though these might be made uniform for the same or similar types of faculties. It was also proposed: (a) that further consideration should be given by inter-university advisory meetings to setting up a permanent body for admission examinations and tests; (b) that a government committee should review the curriculum of the upper secondary schools in relation to the university, lower secondary schools, and society; (c) that representatives of upper secondary schools should attend those inter-university meetings dealing with questions of admission and selection.

Entrance examinations were first introduced in 1955 at the Medical Faculty of the University of Indonesia together with a system of guided study (see pp. 493 and 509), with a remarkable subsequent improvement in the graduation rate; other experiments with entrance examinations, including various types of psychological tests, have increased in number and variety since 1958. At the University of Indonesia, a general comprehensive entrance examination, covering all faculties, with appropriate special papers for these, and including aptitude and personality tests, was introduced in 1964. Its results appeared to show that a substantial proportion of candidates were insufficiently qualified for higher education. In some cases, the number of successful candidates was smaller than the assigned quota of available places. Previously, entrance examinations for the university's Medical Faculty were also held at certain centres outside Java. Since these indicated a significantly lower average standard for candidates in these other areas, this practice is likely to be continued, either with weighted marks or a quota system, to give a reasonable number of students from outside Java an opportunity to attend a major State university and compensate for deficiencies probably due to lower standards of secondary education. The Bandung Institute of Technology also carries out entrance examinations for its various faculties at different centres in the country to assure a wider and more equitable recruitment.

Method of study

Until 1955 all faculties—though not the academies, since they were required to meet personnel training requirements in given periods of time—followed the Dutch system of 'free study' which allowed the student to proceed at his own pace, attending or not attending classes as he wished and taking his examinations, which were mainly oral, when he felt ready. Thus many students spent an indefinite time in the pursuit of their studies—occasionally ten years or more before taking their first degree—and most were concentrated in the first stage of study (grades 13-15) after which a qualifying examination had to be passed. In certain faculties where there was a propaedeutic year, as for instance, in medicine, first-year enrolments constituted well over half the total enrolments, and many students in both cases repeatedly failed to pass the first- or third-year qualifying examinations. The result was that, in the 1950's, on an average less than 2 per cent of the total enrolment graduated each year: in 1954/55 about 300 out of around 5,000 in State universities.

It was in view of the inefficiency, wastage and consequent high cost of this system that, with the advice of foreign university teachers and administrators —mainly American—a system of 'guided study' was first adopted at the University of Indonesia's Medical Faculty in 1955. It has since been gradually extended to most other faculties of State universities, at least in the first one or two years of study, and it is ultimately to replace the old system completely. The basic elements of guided study fall into three categories: (1) rules for admission and study; (2) improvement of methods of teaching and study; (3) development of student welfare facilities. These may be summarized as follows:

1. Admission of a limited number of students in accordance with the maximum effective capacity of a faculty or department; competitive entrance examinations to select the most able candidates in accordance with quota limitations; a definite duration for each stage of education, with, in addition to regular tests and course examinations, a qualifying, examination at the end of each academic year; compulsory attendance at lectures and practical work; a limited number of opportunities to pass given examinations in which the quality of class work is to be taken into account.
2. Special efforts to ensure more adequate staff and facilities, and for this promoting the training of university teachers, especially through contract schemes for training abroad and within the country; standardization of the curriculum of faculties covering the same subject area; assigning a definite number of lecture and practical hours for each constituent course of a curriculum; limited use of the lecture and greater emphasis on discussion groups and practical work; improvement of students' ability to read and understand English; encouragement of students to read more widely, particularly in periodicals; stimulation of the individual initiative and work by students; adequate provision for a liberal general education, an issue which in recent years has also received special attention.
3. Better accommodation, nutrition and other welfare facilities for students to enable them to devote themselves wholeheartedly to their studies, together with the provision of more and larger scholarships.

In some universities the system has been adopted very recently, and only in certain faculties, affecting no more than the first one or two years of study.

Table 10. Results of the propaedeutic examination of the Faculty of Medicine, University of Indonesia 1955/56 to 1958/59

Year	Enrolment	Candidates appearing	Number of passes	Pass percentage of candidates
1955/56	539	474	197	41.5
1956/57	307	307	145	47.2
1957/58[1]	191	189	136	71.9
1958/59	198	188	134	71.3

1. Since 1957, the weeding out of unsuitable students and selective admissions kept the number of first-year students at around 200 until 1962.

Where there has been time to observe the system in action, the results have been more than encouraging.

In the Medical Faculty in Djakarta, where the change was introduced through an affiliation programme with the University of California, started in 1955, the annual output was raised from 30-40 graduates in the period 1951-57 to 60 from the old curriculum and 98 from the new curriculum, a total of 158, in 1959. At the same time the percentage of passes in individual examinations showed a marked improvement, as illustrated in Table 10 on results of the propaedeutic examination.

At the Faculty of Agriculture, Bogor, which adopted the new system through an affiliation programme with the University of Kentucky in 1956, the proportion of first-year students passing the final examination rose from only about 20-30 per cent before 1957 to 57 per cent in 1959/60 and to 70 per cent in 1963/64. In the Faculty of Veterinary Science, Bogor, while a total of no more than 27 students were graduated between 1949 and 1957, in 1961 alone the output rose to around 60.[1]

The faculties and academies that award the *sardjana muda* or *bakaloreat* as a first degree, usually after three years, originally adopted the system to meet the acute shortage of high-level manpower, particularly in various government departments. It was, however, also thought that after some years of service, many of these junior graduates would take the opportunity to complete their studies toward a full *sardjana* degree. Big differences in salary scales—a junior graduate reaches the starting level of a *sardjana* only after eight years of service—have emphasized the importance of the *sardjana* as a basic qualification rather than a higher degree to which only a few aspire. But, with some further reorganization of curricula, it would be possible to make the *sardjana muda* in most faculties a genuine terminal first degree, qualifying holders for the upper echelons of middle-level manpower or the lower ranks of the high-level category, as indeed has been done by the government academies and in teacher training. Admission to *sardjana* studies could then be made selective, and a further effort made to pattern output in accordance with anticipated manpower requirements and employment opportunities. On the other hand, to the extent that guided study is not successfully implemented and comparatively few students reach the *sardjana* stage, such selection would not be needed, but the importance of producing more adequately qualified junior graduates would increase as serious personnel shortages would then be likely to continue.

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[1] Also see results of the Bandung Institute of Technology, pp. 503-4.

The importance of a liberal general education supplementing specialization has been increasingly recognized in Indonesia, although there is some difference of opinion as to the form this should take, and also on the stages at which it should be provided. However, apart from making provision for study related to the Pantja Sila and the Manipol-Usdek (see p. 485) at all institutions of higher education, the universities of Gadjah Mada and of Indonesia have in particular been experimenting with more comprehensive types of general education.

After two years' study of plans for introducing *studium generale* (general education) programmes, the University of Gadjah Mada in 1958 established a special Faculty of General Science and Philosophy, co-ordinating studies in five main fields: philosophy; religion or ethics; biology; mathematics and natural sciences; and social sciences. The objectives of the *studium generale* are to introduce students to fundamental ideas in each of these fields of knowledge, to interpret the influence of these ideas on human life and society, and to approach the programme as a whole from the viewpoint of the Pantja Sila. While students may during their first two years at the university elect to take courses at this faculty, in the last three years of study a certain minimum number of lectures must be attended by all students. In the original plan it was intended that this minimum should comprise compulsory attendance at lectures during four months of the academic year, at the rate of two hours weekly in each of the main fields. It is not clear to what extent this is being put into practice, particularly as some university teachers at the time felt that foundation studies should not be compulsory, so that collateral experiments could be carried out, including different provisions for individual faculties or groups of faculties rather than for the university as a whole.

At the University of Indonesia efforts have been directed towards organizing the curriculum and teaching in each faculty in such a way that a student's specialized instruction is provided with a background of general education. Thus, for instance, in the Faculty of Medicine, various social, philosophical and ethical issues and ideas are examined at appropriate points in the context of discourses on the practice of medicine and the problems of public health.

Media of instruction

The basic medium of instruction in institutions of higher education, as at lower levels, is Indonesian; but students are required to have a basic knowledge of English, at least sufficient to read and understand English-language texts. In addition in several courses, particularly in faculties that have a contract programme with an American university, a number of lectures are given in English. While students are expected to be able to follow these, in practice considerable difficulties in communication have been encountered. Most textual materials, apart from lecture notes, and nearly all reference works and academic journals available are in English, Dutch or another foreign language. The problem posed by the shortage of such materials (see p. 505) is aggravated by the fact that students who have difficulty in understanding the text cannot read at an adequate pace. Programmes to help improve English language teaching at the upper secondary level and to make up for deficiencies in the first year of higher education have been devised with assistance under the Colombo Plan and from the Ford Foundation. Thus in 1959 the Ford Foundation assisted the Airlangga University's Faculty of Education in Malang to establish a graduate school for English language studies to give advanced English training courses to future language teachers in teacher-training schools and centres.

Growth of institutions, enrolments and graduate outputs

Despite doubts about the accuracy of the available figures on higher education, the more reliable data on State universities included in Table 11 confirm that there has been a tremendous growth in institutions and enrolments. The rapid establishment of new institutions between 1959/60 and 1963/64 was mainly made possible by conferring independent university status on groups of faculties previously affiliated to an older university, by incorporating private faculties as State institutions, and by the policy of trying to promote further growth through widespread initial expansion with even the most modest of means. Improvement in quality and efficiency are expected as a later development, especially as guided study is implemented and the acute shortage of teachers and equipment surmounted. Meanwhile, in comparison to enrolments, the number of graduates has been very small (in 1959/60 only 1.8 per cent of the total State university enrolment and 1.3 per cent of private and State university enrolment), and the number and enrolments of State academies have been rapidly increased in order to meet urgent specific shortages of staff in various government departments.

The breakdown of enrolments by main fields of study, given in Table 12, indicates that although there has, within one year, been a remarkable increase in the enrolments in scientific and technological fields, their ratio to enrolments in the arts and social sciences (not counting teacher training) remains

TABLE 11. Enrolments and graduates[1] in higher education, 1950/51 to 1963/64[2]

Year	State universities			Academies		Private institutions			Total				
	Institutions	Faculties[3]	Enrolment	No.	Enrolment	Institutions	Faculties[3]	Enrolment	Institutions	Faculties[4]	Enrolment	Graduates	
												Sardjana	*Sardjana muda*
1950/51	2	14	4 600[5]							62	6 457	74	15
1952/53	2	20	8 938							113	18 413	127	59
1954/55	3	36	15 000									302	255
1957/58	7	39	27 157									837	849
1959/60	8	50	37 768[6]	45	5 850[7]			20 000			63 618	920[8]	
1961/62	14	101	65 635	46	11 100[9]	114	240	20 475	174	387	97 210	1 500[10]	
1963/64	27	165	94 586	71	15 000	179	386	40 303	281	644	184 489		
	4[11]	22	34 600										

1. Only graduates from State universities. *Sardjana*, generally a minimum of five to seven years of study has been required (since 1954/55, for new enrolments four to six); *sardjana muda*, generally three years.
2. Selected years for which data on State universities are available have been taken; but for academies and private institutions of higher education, in earlier years, even estimates for separate enrolments are not available. The data presented are abstracted from various official records of the Ministry of Higher Education and Science and of the universities of Gadjah Mada and Indonesia.
3. Include major departments, schools or institutes where, as divisions, they are comparable to faculties (e.g., the departments at the Institute of Technology, which has no faculties, and the Institute of Psychology at the University of Indonesia).
4. Include academies.
5. Includes estimate for University of Indonesia.
6. In contrast to this enrolment figure given in the plan (including 22,654 in arts and social sciences and 15,114 in science and technology), the statistical section of the Ministry of Education in an official chart indicated an enrolment of 52,500. Reasons for the discrepancy are unexplained: but the plan figure involves a doubling of enrolment between 1960 and 1962 instead of between 1958 and 1960. In either case, an astounding achievement within a mere two years.
7. Estimate based on an average enrolment of around 130 per academy.
8. Includes an estimate for Gadjah Mada University based on total number of *sardjana* graduates until 1959/60 enrolments, the minimum period of study required and the rough pass rate.
9. Includes estimated enrolments of 5,100 in B I and B II teacher-training courses as well as about 6,000 at the academies, at the rate of about 130 per academy.
10. The Colombo Plan, *Thirteenth Annual Report of the Consultative Committee*, November 1964, p. 120. The estimate for 1963 is 2,500. An estimate of 7,772, including teacher-training graduates at the B I and B II levels, graduates from academies and from private universities, was given in the *Director's Report*. But this is probably exaggerated, and also includes a number of *sardjana muda* or *bakaloreat* diplomates.
11. Four branch institutes of the National Institute of Higher Teacher Training (IKIP).

TABLE 12. Distribution of enrolments by main fields of study: (a) 1961/62, all institutions; (b) 1963/64, State universities and teacher-training institutes (IKIP)[1]

Main field of study	1961/62 enrolments, all institutions		1963/64 enrolments, State universities	
	No.	Percentage	No.[2]	Percentage
Arts and social sciences	52 508	54.1	56 700	44.0
Science and engineering	11 091	11.4	13 200	10.2
Medicine	7 334	7.6	17 100	13.3
Agriculture and veterinary science	3 312	3.4	7 400	5.7
Teacher training	22 857	23.5	34 600[1]	26.8
TOTAL	97 102	100.0	129 000	100.0

1. Includes all enrolments in higher teacher training.
2. Rounded figures.

around 1 : 1.5, whereas in terms of number of faculties the ratio is 1.44 : 1. Furthermore, while the latter proportion is to be raised to 2 : 1 by the end of 1965 (see p. 487), the estimated output of graduates in 1969, given in Table 13, shows a clear preponderance of arts graduates (roughly 11 to 6), whereas in 1958 there were significantly more in science and technology (over 5 in science as against 3 in arts). It is also to be noted (Table 14) that during 1949-61 most of the graduates were produced by four institutions of higher education: Indonesia, Gadjah Mada, Airlangga and the Bandung Institute of Technology. In the near future the contribution of the newer institutions is likely to increase rapidly, particularly as several, including 18 State universities, will start producing their first batch of graduates only after 1966.

Even though the output-enrolment ratio has been low, the performance over the twelve-year period of 1949-61, as Table 13 supplemented by Table 14 shows, is remarkable when the very meagre resources and small beginnings are kept in mind. An average of over 440 full graduates has been produced each year, and the number of graduates has increased very rapidly—more than fourfold between 1954 and 1958. The estimates for 1965 and 1969 have clearly placed considerable trust in the full and successful implementation of guided study. If only the State university enrolment in 1963/64 is taken into account, the 1969 target would require over 18 per cent of it to graduate, as against the actual graduation ratio of 6 per cent in terms of the 1959/60 graduates from the 1954/55 State university enrolments.[1] If total enrolments

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[1] Taking the five-year period generally required for a *sardjana* as a rough average is only slightly inaccurate, since while the minimum period of study for medicine is six years, it is four to four-and-a-half years for engineering.

TABLE 13. Graduate (*sardjana*) outputs by main fields of study: (a) total 1949-61; (b) selected years; (c) projected estimates, 1965 and 1969

Main field of study	Total output, 1949-61	Outputs for selected years				Estimates[1]	
		1950	1954	1958	1962	1965	1969
Arts and social sciences	1 781	24	68	309[2]		2 277	10 760
Science and engineering	1 472	4	48	218		670[3]	3 250
Medicine	1 319	41	62	232		1 407	1 320[4]
Agriculture and veterinary science	415	—	33	78		425	1 530
Teacher training	65[5]	...	...	...		2 500	6 250
TOTAL	5 052	69	201	837	1 500[6]	7 279	23 110

... Data not available.

[1] By Ministry of Higher Education and Science in Blue Print House, Djakarta.

[2] Includes 4 in pedagogy.

[3] Apparently an incomplete estimate, not taking account of graduates in certain basic sciences.

[4] The decrease is due to a curtailment in the production of dentists; the number of physicians is increased from 793 to 900.

[5] Only graduates from faculties of education.

[6] Colombo Plan Report estimate, op. cit.

TABLE 14. State university graduate (*sardjana*) outputs by institution and main field of study, 1949-61

University	Arts and social sciences	Science and engineering	Medicine	Agriculture and veterinary science	Teacher training[1]	Total
Indonesia	762	—	629	297	—	1 688
Padjadjaran	132	—	—	—	28	160
Gadjah Mada	769	310	182	118	35	1 414
Airlangga	57[2]	—	498	—	—	555
Sumtera Utara	40[2]	—	10	—	—	50
Andalas	10[2]	—	—	—	—	10
Hasanuddin	11[2]	—	—	—	2	13
Institute of Technology, Bandung	—	1 162[3]	—	—	—	1 162
TOTAL	1 781	1 472	1 319	415	65	5 052

[1] Only university faculties of education.

[2] Only graduates in law.

[3] Apparently does not include graduates in fine arts, as the institute itself gives the total number of graduates up to 1961 as 1,300.

are considered, then the required proportion of around 12.5 per cent appears to be more feasible. In fact enrolments in the first year were generally much larger than one-fifth of total enrolments (nearly 50 per cent in 1959/60); but even with a theoretical base of 20 per cent, the 12.5 per cent requirement allows for a wastage and retardation rate of around 38 per cent.

On the other hand, unless the pace of economic development accelerates, the 1969 targets, if reached, may well lead to serious graduate unemployment. While outputs between 1949 and 1963 suggest that at the end of the latter year there were no more than around 11,000 *sardjana* graduates (although the 1961 Census data list about 21,000 persons who have had some university education and 34,000 with some type and level of other higher education), in the five target years between 1965 and 1969, on an average, each year an additional 12,500 graduates would be seeking employment, and in practice at the end of this period no fewer than 23,000 graduates would become available in a single year. With a sound economy the country would need and could absorb as many and more graduates with advantage, but this will in fact be feasible only when a much larger proportion of the national budget is invested and expended on productive economic operations and when the national income is increasing at an adequate rate.

THE POSITION IN THE MAIN FIELDS OF STUDY

Arts and social sciences

Though a minimum of five years of study is usually required to obtain a *sardjana* degree, in some cases a law or social science degree (e.g., at Gadjah Mada and Padjadjaran) may be secured after four years, and a number of faculties offer terminal *sardjana muda* or *bakaloreat* diplomas after three years of study. Available curricula nevertheless suggest that, even in the latter instance, the diploma represents the completion of a first stage rather than of an integral course. On the other hand, most of the government academies provide, and in many cases limit themselves, to three-year courses leading to the *sardjana muda* or *bakaloreat* in such fields as commerce, sociology, public administration and statistics. Thus the Academy of Statistics, for instance, offers a three-year course including economics and specialization in the final year.[1] The older universities provide facilities for study towards a doctorate, which requires the presentation and defence of an original thesis, but very few students take these up, and then usually on a part-time basis while in full employment.

While a major share of total enrolments is in the arts and social science field, within this the heaviest enrolments are in law, political science and economics. Apart from the fact that these subjects represent traditional avenues to civil service appointments, other probable factors influencing such a weighting are that in addition to part-time study, correspondence courses are available at a number of universities (e.g., Padjadjaran and Indonesia): they are less costly to set up and operate, and a considerable part of their staffing requirements are met by practising lawyers, civil servants and members of the business community. It is in this field that women students are most strongly represented, though rather more in the humanities, psychology and sociology than in law and economics. In the former subjects, they formed well over 50 per cent of the enrolment at the University of Indonesia and Padjadjaran University.

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[1] In demography, agricultural statistics, industrial statistics, national income, prices, data processing, trade and transport, mathematical statistics.

Considerable efforts have been made to improve the quality of faculties of economics, and in the case of the University of Indonesia a Ford Foundation grant and a programme of affiliation with the University of California from 1954 to 1960 assisted in the modernization of the curriculum and the training of university teachers. As a result, the Djakarta Faculty of Economics has developed a sound research programme, trained 60 lecturers in economics, and in 1963 worked out a general agreement for close co-operation with the newly established National Economic and Social Research Institute.

The latter also plans to support research at other universities, and in 1963 gave research contracts to four faculties: Economics at the University of Indonesia; Agriculture at Bogor; Teacher Training at Padjadjaran University; and Economics at Gadjah Mada. In addition, as part of its staff training programme, including a weekly staff seminar to discuss important economic and social issues, the institute has been requested by several faculties to allow their younger staff members to attend such courses, and it proposes to accept such a responsibility as one of its essential tasks as soon as it feels it has the necessary strength. Altogether, the close association between this institute and university faculties is not only welcome in itself, but also for the development of the other national research institutes and their relationships with universities. In this respect both the Indonesian Council of Scientific Research (MIPI) and the four specialized Advisory Research Councils (Economic, Social and Cultural Research; Medicine; Agriculture; Technology and Industry), each with a membership of around 30 scientists including members of university staffs, could help to establish permanent functional links that would assure continuous co-ordination rather than the organization of occasional contracts.

Public administration and management training have also received special attention in recent years. The contract between the University of Indonesia and the University of California made it possible to send some fifty teachers to American universities for further study and training, and another contract between Gadjah Mada and the University of Wisconsin has been helping to develop courses in business administration. Most other faculties, including private ones, offering similar courses are patterning these on the experience of the universities of Indonesia and Gadjah Mada, with the help of visiting lecturers from these institutions. In addition, management seminars were initiated as far back as 1956, by the Surabaja Technological Institute (then still a private institution) to assist in providing personnel for the administration of nationalized estates and plantations. Since then, such seminars have become a regular feature of the work of the University of Indonesia, the National Institute of Administration and several other institutions, including sponsorship by the government body responsible for State enterprises.

Fine and commercial art courses are provided by a section of the Department of Architecture and Fine Arts of the Bandung Institute of Technology; the three government academies (of fine arts and of music in Jogjakarta, and ballet, in Djakarta); and the independent school of fine arts in Djakarta together provide post-secondary courses in music and ballet as well as the fine arts. It is interesting to note that in a country of Indonesia's size, these are the only provisions for higher education in the fine arts, and that of the projected 10,760 arts graduates for 1969 (Table 13) only 40 fall into the fine arts category.

On the other hand, the total projected growth of arts and social science graduates appears to be very large both in proportion to likely demand and to graduates in other fields—more than three times as many as in science and engineering. In response to social demand, and as a cultural asset, such a high output may not be undesirable, but in terms of cost implications, viewed against a background of serious, indeed crippling, shortages of investment in various educational and economic sectors, it may well require reconsideration.

Science and engineering

In addition to the upper secondary school certificate in the science or technology section, admission to courses in mathematics, natural science and engineering now generally requires an entrance examination for State institutions of higher education. Though in theory graduates of upper secondary technical schools are eligible, most students come from academic schools. The minimum period of study for the *sardjana* degree in mathematics and natural sciences, including biology, usually is five years; but now, with the exception of architecture (five years), engineering generally requires only four to four-and-a-half years, for which the title *insinjur* (Ir.) is awarded. The *sardjana muda* or *bakaloreat* certificate represents a transitional qualification which may be obtained after two to three years.

Although in 1961/62, including medicine, agriculture and veterinary science, there were no fewer than 46 State university faculties or major departments in the scientific and technical field, in basic sciences and engineering there were no more than 22, of which only 5 taught mathematics and natural sciences, including chemistry and biology. In addition, there were 15 State academies in specialized technical fields (including such subjects as railway

TABLE 15. Science and engineering enrolments at Gadjah Mada and the Bandung Institute, 1961/62

Subject field	Gadjah Mada		Bandung Institute	
	Enrolment	Percentage of total	Enrolment	Percentage of total
Biology and chemistry	116	6.2	205[1]	6.0
Mathematics and natural sciences	340	18.3	193	5.3
Technology	1 403	75.5	2 738	74.0
Architecture	—		544	14.7
TOTAL	1 859	100.0	3 680[2]	100.0

1. Does not include 776 students of pharmacy.
2. Does not include 776 students of pharmacy and 187 of fine arts.

and textile engineering, communications and navigation) and 1 for chemical analysis. Among private institutions, there were 12 engineering faculties and 4 for mathematics and natural sciences. In 1963/64, however, the official list of private institutions showed 42 engineering and 5 mathematics and natural science faculties in 1 equalized, 13 recognized, 14 registered and 17 candidate institutions. Emphasis is thus laid heavily on engineering, and this is further increased when it is noted that a considerable part of the work of the basic science divisions is devoted to providing courses for technological students.

The most important and productive of the institutions providing science and engineering courses are the Bandung Technical Institute and Gadjah Mada. The first includes the oldest scientific establishments in the country and is fortunate in having various government research institutes on its campus. Since 1956 it has had a contract programme with the University of Kentucky, and has been designated as the official centre for providing science and engineering teachers for other universities (which incidentally makes it possible to pay an additional honorarium to its own teachers!). It houses the only school of architecture in the country, and interestingly enough also the only State university school of fine arts.[1] While Bandung began to introduce the guided study system in 1956, Gadjah Mada has done so only recently. Both institutions have the major share of their enrolments in the technological field, as Table 15 shows.

This situation is reflected in the output of science and engineering *sardjana* graduates not only in the past, but also in projections for the future; for instance, in 1969, planned outputs are for 2,820 technology graduates as against 430 basic science graduates, giving a ratio of 7:1. Indeed, reporting

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[1] There is, however, a State academy of fine arts under the Ministry of Basic Education and Culture.

TABLE 16. Enrolments and graduates of the Bandung Institute,[1] 1952/53 to 1961/62

Year	Enrolment	Graduates	Year	Enrolment	Graduates
1952/53	2 303	8	1957/58	4 205	202
1953/54	2 835	24	1958/59	4 148	152
1954/55	3 111	37	1959/60	4 639	333
1955/56	3 659	57	1960/61	4 658	339
1956/57	3 996	132	1961/62	4 740	400

1. Includes students of architecture and fine arts.

in August 1961 on trends at the Bandung Institute, Dr. M. M. White, reviewing official for the Kentucky contract programme stressed that: 'There are not enough majors in physics. Over 90 per cent of the departmental load is taken up with engineering students. Unless a greater number of qualified students go into physics, the Indonesian economy will eventually suffer from the lack of fundamental research, and from its inability to replenish its supply of physics teachers. Unfortunately, there seems to be little expressed interest in fundamental research. Unless this defect is soon corrected, the institute may eventually become purely a technicians' school.'[1]

The beneficial influence of the guided study system is demonstrated by the data in Table 16 on the growth of the Bandung Institute, which show that between 1952/53 and 1961/62, while enrolments just about doubled, the number of graduates rose from 8 to 400, and that this increase was most manifest after 1956, when the system was introduced.

However, while results have thus been very promising and have raised the ratio of graduates to enrolments from less than 2 per cent in 1955/56 to over 8 per cent, the latter proportion is still low. This is, at least in part, due to various problems that also affect the quality of scientific education and research in several other fundamental ways, and even more in other institutions of higher education recently established and far less well endowed: shortage of full-time qualified staff; lack of scientific equipment and supplies; poorly stocked libraries; inadequate selection and guidance of students, and insufficient knowledge of English or any other world language.

Reporting on scientific research in Indonesia in a bulletin of MIPI in May 1960,[2] Professor Richard J. Russell makes the following general observations on the first three factors. Pointing out that, due to very low salaries, university teachers are obliged to undertake other remunerative tasks, he considers that: 'Under such conditions it is extremely difficult for a

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1. M. M. White, *Kentucky at Bandung—a Review after Five Years*, p. 31 (University of Kentucky, August 1961).
2. R. J. Russell, *Report on Scientific in Indonesia*, p. 13 (Djakarta, May 1960, MIPI, Bulletin 2).

professor to find any time whatever for research.... Inadequate salaries present the greatest single obstacle to development of the nation for the reason that they cripple universities and research institutions....

'Second among obstacles to national development is a general shortage of books and completely inadequate supply of current scholarly, scientific, and technological journals. Indonesia is woefully uninformed as to developments in the rest of the world. Its modest research programme is hindered by ignorance of what is being done elsewhere....

'A third major obstacle is shortage of supplies, such as chemicals, glassware, metals and minor items of equipment. Here the greatest need is for items that are "used up" in the ordinary process of teaching or in research investigation. Changes in laws, ways of enforcing laws, and probably some new international agreements are needed to make it possible to import freely and rapidly not only books and journals but also necessary supplies and equipment for universities and research laboratories. It is very expensive to carry on under existing handicaps as both people and equipment are kept idle too much of the time.'

So far as insufficiency of funds lies at the root of these problems—and universities have repeatedly drawn attention to the inadequate response to their budget requests—it further emphasizes the danger of attempting too much with too little. The cost in terms of sacrificed quality and wastage, with inevitable long-term repercussions on the economy, is bound to be high. It was surely in full recognition of this that a Special Study Committee on Technical Education of the Ministry of Education in 1959 strongly recommended that: 'While every effort should be made to eliminate waste, there is a minimum *per capita* cost below which effective technical education cannot be given. If finances do not permit such an expenditure, technical education should not be undertaken.'[1] In fact, as the rapid increase of institutions shows, this advice has been overlooked, and further expansion plans call for the establishment of 26 new State faculties in science and engineering between 1963 and the end of 1965.

Concerning the selection and retention of students, Dr. White observes: 'Some of the students admitted to ITB are actually not interested in becoming engineers. They seek a degree for the social status it promises. Because of lack of motivation they fail course after course. One of the administrators suggested that some of these students could become well qualified teachers for the high schools. Since the Indonesian society desperately needs teachers, it seems a waste of the nation's resources and a waste of the students' time and energy to let these uninterested students continue for an indefinite period in a pre-engineering curriculum.'[2]

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1. Special Study Committee on Technical Education, *Working Theses for Developing Technical Education in Indonesia*, p. 6 (Bandung, Government of Indonesia, Department of Education, 1959. Technical Report No. C-1).
2. *Kentucky at Bandung*, op. cit., pp. 9-10.

On the problem of world languages, Dr. White adds: 'Many of the professors of the institute are proficient in three or four languages, and yet the present group of entering freshmen is unable apparently to read with proficiency any foreign language. Since English has been approved as the second language,[1] it seems that the institute should consider various means of overcoming the deficiencies of the students in English. There is every indication that this problem will become more acute with the passage of time unless something radical is done. A student graduating from an institute of technology must have access to the world's scientific literature....

'The institute should consider the possibility of creating a subsection of English. To be sure this would be a service section, but at the present time, mathematics, physics and chemistry have a very large service load. English should be treated in the same way as mathematics, physics and botany, etc., are treated. Teachers of English, if the suggested scheme is workable, should be given the same consideration as other staff members of the institute.'[2]

Although the institute has not set up courses of general education on the pattern of Gadjah Mada, it recognizes their importance and sets an example of how these may be introduced in relation to particular fields of specialization. Dr. Kenneth L. Neff, in a study of *National Higher Technical Education in Indonesia,*[3] points out that: '... an examination of the curriculum reveals that a number of courses are required which, though desirable or even essential to the specialty concerned, involve study in other fields such as law, language, social sciences, or business administration. Such courses can be classified as general studies since they introduce the student to other fields of knowledge and thus help to broaden his perspective.'

As percentages of total required course units, those for general studies are relatively small;[4] but in addition to being compulsory, as at Gadjah Mada, they also require passes in examinations. Furthermore, instead of being designed to survey the general field of knowledge, these courses are mostly geared to the specialty of the student, e.g., 'engineering economics', 'labour law', 'urban demography'.

While the need for developing scientific research has been widely recognized and emphasized both in the creation of a major Ministry of National Research and in the plans for the MIPI National Research Centre (see p. 486), many problems have to be overcome and much remains to be done, particularly in the scientific and technical faculties of universities.

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[1] And English language courses are compulsory in the first two semesters of study at the institute, but there are not enough qualified teachers to make these courses effective.

[2] *Kentucky at Bandung,* op. cit., pp. 26-7.

[3] Kenneth L. Neff, *National Higher Technical Education in Indonesia: Recent Trends,* p. 26 (Washington, U.S. Department of Health, Education, and Welfare, Office of Education, 1961).

[4] Architecture (first four levels) 9.6 per cent, geodesy 8.6, chemistry 7.7, mining 7.7, mechanical engineering 7.3, civil engineering 6.8, physics 6.7, electrical engineering 4.2.

The officially proposed output of 3,250 science and engineering graduates for 1969 (see Table 13, p. 499) appears to be well below the targets of 3,700 to 4,000 for 1970 suggested in the Hunter report;[1] but out of this total no fewer than 2,820 are to be engineers as against Hunter's recommendation of 700 to 1,000, with both estimates including 300 to 400 physical scientists.[2] Such a fundamental difference clearly requires careful reconsideration. It would seem certain that an output of about 430 scientists by 1970 will fall short of needs not only in industry and research laboratories but still more in the field of university teaching; even this target would not seem to be within range without very big increases in the current trend of enrolment growths in the sciences. This will become possible only as more science teachers become available both for upper secondary schools and for university faculties. Reliance on the recruitment of foreign staff can only help to meet this problem by training more Indonesian graduates in science, it cannot solve it.

On the output of engineers Hunter comments: 'Clearly Indonesia will need engineers, scientists and technicians. But the need is neither so rapidly expanding nor so fundamental to economic growth as the need for an agricultural service. It might almost be said that industry will only be able to expand if agriculture earns the foreign currency for it. An output of 400 fully professional engineers per annum, matched with an output of 1,200 technicians of good quality might be enough to look after the expansion of industry for quite some time to come. Since this is well within Indonesia's capacity, and might easily be exceeded by ambitious expansion, a more detailed survey of needs in a dozen key technologies might be extremely valuable at this stage, so that proper targets could be set.' In 1955, Dr. Djuanda, then director of the National Planning Bureau, estimated that Indonesia would require a stock of 7,500 engineers by the end of 1960, including needs for university teachers and research workers.[3] While between 1949 and 1961 fewer than 1,500 graduate engineers were produced, since then rapidly increasing outputs will soon reach this target and surpass it. As industrial development has been considerably slower than anticipated, this should more than cancel out the delay in meeting the earlier 7,500 target based on high development expectations. Future big increases (at the rate of 2,800 engineers per year from 1970 to 1980, a total of 28,000 new engineers in ten years, about trebling a potential stock of around 10,500 in 1969/70, on the basis of current calculations) may therefore well outstrip real needs.

Similar considerations apply to proposed increases in the output of

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1. Excluding supporting scientists for medicine and agriculture which will be considered under these heads.
2. Hunter also refers to earlier official plan estimates of science and engineering *sardjanas* from State institutions in 1965, numbering 300 in technology, 125 in chemistry/biology, 100 in mathematics and physical sciences, total 525. A later official estimate for 1965 came to an incomplete total of 670 (see above, p. 499).
3. *Terminal Report of Dr. Ward Keesecker*, pp. 14-15 (Djakarta, USOM, 18 January 1957).

technicians from upper secondary schools not only in relation to absolute figures—5,500 in 1968 as against Hunter's recommended per annum output of 1,200—but also with respect to their proportion to estimated engineering graduates in 1969. These estimates would give an engineer/technician ratio of over 1:2 as against the generally accepted proportion of not more than 1:3.

There is surely a strong case for reviewing current trends, with less emphasis on the growth of engineering at the expense of the production of scientists. It would not, of course, be possible to introduce major changes immediately, but if these are found desirable preliminary measures will become urgent.

Medical sciences

Entrance to medical studies has, since 1955, gradually become selective at all State universities of Indonesia. Each year a restricted number of students is admitted, generally on the basis of an entrance examination open to candidates who have completed the scientific section of upper secondary education. The minimum required period of study for graduation has in recent years, with the introduction of guided study, been reduced from seven to six years, including a pre-medical year with basic science courses. Dentistry requires five years; pharmacy four to five years; and at the University of Indonesia Medical Faculty degree courses for pre-clinical subjects (e.g., biology, physiology and anatomy) extend over a minimum of five years, while technician training courses in chemistry and microbiology lead to a diploma after three years. The final State university examination, which is preceded by a year of combined study and internship, entitles the graduate to practice without meeting any further professional qualifying requirements.

In 1961/62, nine State universities had faculties of medicine, five of dentistry, one of pharmacy, and the Bandung Institute also had a subsection for pharmacy in its Department of Biology and Chemistry. In 1963 three more State universities had established faculties of medicine; and plans for 1965 envisaged the addition of one faculty of dentistry. Private institutions of higher education at various stages of recognition in 1963/64 possessed seven faculties of medicine, five of dentistry, and one of pharmacy. In addition, in 1963, there were three government academies operated by the Ministry of Health—including an academy of nutrition associated with a nutritional research institute—and some twenty government research laboratories, several of which also provided courses for the training of laboratory technicians and health inspectors.[1]

Total State university enrolments in medical sciences have grown very rapidly from approximately 7,000 in 1961/62 to over 17,000 in 1963/64.

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[1] Collated data on students and diplomates of these institutions are not available.

The output of medical and allied faculties has increased from about 40 graduates in 1950 to well over 250 in 1961/62, and is expected to reach around 1,400 in 1965. The remarkably rapid increase in the number of graduates has been largely achieved through the programme of guided study, first introduced in 1955 at the University of Indonesia with the help of its affiliation contract with the University of California, which then entered into a similar contract with Airlangga University.

The first contract was preceded by consultations in 1951 and recommendations on the improvement of medical education made by a WHO visiting team of medical scientists in 1953. First arranged for two years, then extended for another two and phased out in an additional year by June 1960, services provided under the contract included the provision of a staff of visiting specialists in various fields of medicine and assistance to the university in arranging a training programme for the Indonesian teaching staff.[1]

The scheme was operated under the joint direction of a home staff coordinator in San Francisco and a project director, from the University of California, in Djakarta. Supervision of the implementation of the programme at the Faculty of Medicine was the joint responsibility of its dean and the project director.

The programme started with a revision of the curriculum—including a reduction in the minimum study period from seven to six years and the introduction of guided study—and the limitation of enrolments to 200 in the first year and 150 in each of the subsequent years. During the total period 31 professors and lecturers were recruited from all over the United States and 120 Indonesian members of the faculty, including assistants, were sent abroad for further study and training for periods ranging from three months to three years. Through these training programmes the number of Indonesian staff members of the Medical Faculty was increased from 30 in 1950 to 336 in 1960. In 1961 there were 60 students training to become specialists in preclinical subjects in order to take up teaching appointments at various universities. According to Professor Sutarman,[2] the improvements brought about in medical education: '. . . together with a continuing teacher-training programme for five years should produce enough personnel to enable all medical colleges in Indonesia: (1) to carry on undergraduate teaching up to a standard which compares favourably with that of medical schools with international standing; (2) to form a nucleus of scientific workers to carry on basic as well as practical research: (3) to provide post-graduate training for future

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1. Actually, of an ICA grant of some $1.9 million for this contract, about equal amounts were expended on equipment and on staff salaries, around $600,000, with an additional expenditure of $384,000 for travel, transport and allowances. The latter was more than balanced by an additional provision of equipment and supplies by the affiliation project, valued at about $500,000.
2. Sutarman, 'The University of California—the University of Indonesia Affiliation Project in Medical Education (1954-60)', *Medical Education Bulletin*, Vol. VI, No. 2, p. 8 (New Delhi, WHO Regional Office for South-East Asia, July 1961).

TABLE 17 Pass percentages of total enrolment at five stages of medical education in the University of Indonesia, 1957/58[1]

Stage	Enrolment		Passes		Expelled	
	Total	Repeaters	No.	Percentage	No.	Percentage
Propaedeutic	191	69	136	71.2	17	9.0
Sardjana muda	162	12	137	84.5	1	0.5
Sardjana I	158	12	146	92.4	—	—
Sardjana II	126	3	124	98.4	—	—
Dokter I	103	—	102	99.0	—	—

1. Also see Table 10 for results of propaedeutic examinations from 1955/56 to 1958/59.

teachers and research workers.' Furthermore a new department of clinical pathology was set up, all thirteen faculty departments received assistance in the form of equipment and supplies, and steps were taken to set up a central library bringing together the documentation of the various departments.

Apart from the fact that by 1961/62 the programme has ensured an output of 150 graduates from an original intake of no more than 200 students, the high pass percentages of total enrolment in 1957/58 for various stages of the curriculum demonstrate its quick impact (Table 17).

Finally, during the affiliation period, special efforts were made to promote research by creating a general fund to provide financial aid for research projects carried out by members of the faculty. Grants were obtained within Indonesia as well as from foreign aid sources. Between 1957 and 1959 it became possible to carry out or initiate ten research programmes. Even so, unless research grants adequately supplement the low salaries—and indeed unless these too are appropriately increased—medical research at the universities is likely to remain a fringe activity. Professors will continue to be obliged to spend most of their time outside teaching duties in private practice, and the best students will prefer to go abroad for post-graduate work.

There is an obverse to the picture thus presented. Inter-faculty meetings on medical education, in which representatives of the Ministry of Health and of the Indonesian Medical Association participated, have stressed the need to achieve uniformly high standards and to include adequate attention to public health education and training in all curricula. It was decided that every medical graduate should be a '*dokter kabupaten*', i.e., a doctor qualified to work in comprehensive medical and public health services on the district level or as a general practitioner in a rural environment, with particular emphasis on the preventive and public health aspects of the work.

Before a period of government service was made obligatory for all graduates in 1961, medical graduates have since the beginning of independence been required to submit to government placement anywhere in the country for a minimum of five years. This regulation had undoubtedly helped to meet some major needs outside the cities, but no statistics are available to show the scope and degree of success of the measure.

WHO[1] in 1957 indicated a doctor/population ratio of 1 : 70,768, with a stock of 1,146 physicians; and for 1960, Hunter suggests that it was still less than 1 : 60,000, with a stock of perhaps 1,500 doctors (possibly including a number of dentists). Graduate outputs between 1949 and 1961 numbering 1,319—including dentists and pharmacists and only 1,076 physicians—would suggest that Hunter's estimate is more likely to be on the high than the low side. The urgent need for more doctors is also stressed in terms of the high incidence of various endemic diseases, estimated for some to be between 10 and 50 per cent of the population.[2]

Ministry projections of the output of doctors after an initial spurt to 793 in 1965 (covering a backlog of repeaters), estimated subsequent annual outputs to 1969 at 574; 608; 860; and 900.

The planned effort is indeed on a considerable scale, and it is to be hoped that the output of essential para-medical personnel will keep pace with it. Since responsibility for training the latter is shared between the Ministry of Higher Education and Science, so far as university courses are concerned, and the Ministry of Health, in relation to academies and research institutes, the development of collaboration and co-ordination for this purpose will be most important.

Agriculture and veterinary science

Entrance to most State institutions of higher education and training in agriculture, forestry, and veterinary science involves strict selection,[3] and candidates usually come from graduates of the science section of general upper secondary education. However, a few are also admitted from agricultural upper secondary schools—in the case of the Bogor Institute of Agriculture and Veterinary Science,[4] from among the top 10 per cent of graduates recommended from such schools when it has been found that they usually turn out to be among the best students. The minimum period of study for a full *sardjana* is generally five years. A *sardjana muda* or *bakaloreat* may be awarded after three years, and consideration is being given to proposals that junior graduates from the more recently established faculties might be required to serve in the field for at least two years before going on to complete their studies for the *sardjana*. The main reason for the proposal appears to be to meet urgent shortages of field staff.

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[1] *World Directory of Medical Schools*, p. 135 (Geneva, WHO, 1957).

[2] Malaria 30 to 50 per cent, amebiasis 10, yaws 15 (some areas 60), hookworm 50 to 80, venereal disease 15, and trachoma 20 (some areas 85)—John O. Suttor, 'Scientific Facilities and Information Services of the Republic of Indonesia', *Pacific Scientific Information*, No. 1, Table 1, p. 4 (Hawaii, Pacific Scientific Information Centre, 1961).

[3] In the late 1950's and early 1960's only 20 to 30 per cent of the applicants for admission were admitted to the Bogor Agriculture and Veterinary Science Faculties, where until 1963 school records including class ratings as well as examination results, rather than entrance examinations, were the basic criterion.

[4] Until 1964 faculties of the University of Indonesia.

Although in recent years there has been a big increase in the number of graduates, the number of institutions and enrolments has grown even more rapidly. In 1949/50 there were only two State faculties of agriculture and two of veterinary science in Bogor and Jogjakarta; by 1961/62, there was a total of eleven faculties (four agriculture, two agriculture and forestry, one agriculture and animal husbandry, and four veterinary science and animal husbandry); between 1960 and 1964, ten more faculties of agriculture had been added to bring the total to twenty-one, with plans for the establishment of another five forestry and two agriculture faculties by the end of 1965. In addition, in 1963/64, there were two 'registered' and two 'candidate' institutions of higher education offering courses in agriculture and one 'candidate' institution in veterinary science. In 1962/63, three State academies under the Ministry of Agriculture, respectively provided three-year courses in agriculture (mainly for extension work), sugar technology and animal husbandry. Finally, in 1961 there were eight agricultural research institutes (including the Central Agricultural Research Station, with several branches, the Central Forest Research Institute, and the Inland Fisheries Research Institute), and three veterinary institutes (including the Central Animal Husbandry Station, with many divisions), and the Central Institute for Veterinary Medicine.

Enrolments grew from little over 250 in the four faculties of the University of Indonesia and Gadjah Mada in 1951/52 to more than 3,300 in 1961/62 and 7,400[1] in 1963/64. Where in 1951/52 three students graduated in agriculture and from 1948 to 1957 a total of no more than 27 veterinary graduates were produced, in 1962/63 the Bogor faculties[2] alone graduated 100 full graduates in agriculture and about 60 in veterinary science. This achievement and its spreading impact on agricultural education throughout the country was again supported through a contract programme, in this case between the Bogor faculties and Kentucky University.[3] The following data on the growth of Bogor enrolments and graduate outputs are even more impressive when it is remembered that the failure rate for the first year of study has been reduced to less than 30 per cent from 40 per cent between 1956 and 1961 and 80 per cent before 1956, and that about 85 per cent of the entrants finally graduate, usually in the minimum required five years.

By June 1962 no fewer than 111 Bogor 'participants' had gone to the United States, of whom 53 had returned, and there were 60 prospective participants for 1963/64, as compared with only 6 in 1958/59. Unfortunately

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[1] State universities only. See Table 12.

[2] Then still affiliated to the University of Indonesia.

[3] Additional assistance was also received from a number of countries, particularly for post-graduate studies and training.

TABLE 18. Growth of enrolments and graduate outputs at Bogor, 1957/58 to 1962/63[1]

Year	Agriculture		Veterinary science	
	Enrolment	Graduates	Enrolment	Graduates
1957/58	572	28	338	12
1958/59	763	23	358	15
1959/60	897	29		33
1960/61	849	113	531	78[2]
1961/62	814	79	535	
1962/63	854	100	549	

1. In 1963, the Bogor Faculty of Agriculture expected to have an enrolment of 1,200 and a graduate output of 125 by 1965/66.
2. The *Annual Report 1957/58* of the University of Indonesia (p. 39) indicated that it was expected to graduate 100 to 115 veterinary surgeons a year beginning with 1963/64.

most participants were called back before they were able to complete work for a degree, in order to meet urgent teacher shortages. Dr. William H. Jansen, in his fifth-year report on the programme, while noting that there were some welcome signs of revising this policy,[1] strongly felt that: '... Indonesia cannot afford to call her participants home before they have completed their training. It would be far better to delay the instruction of a few undergraduates than to doom generations of students to being taught by a half-trained instructor. It costs far more to half-train two instructors than to fully train one instructor, and two half-trained instructors are worth far less than one fully trained instructor.'[2]

Apart from this problem and the common difficulties encountered as a result of low teacher salaries, a number of major impedimenta to development have stood in the way of promoting research, extension and practical experience in agricultural techniques. Research is obstructed by the lack of co-ordinated surveys to pinpoint crucial problems; shortage of equipment and supplies (only partly solved by collaboration with better-equipped government institutes and laboratories); lack of transport for field work; inadequate supply of literature, particularly of journals; and the usual lack of funds. Special efforts to stimulate and guide research, while helping to deal with some of the supply problems, were begun by the Kentucky team in the middle of 1961, when it began to be able to hand over many of its direct teaching and training duties to returning Indonesian programme participants.

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[1] And indeed a later interim report (unpublished) shows that whereas in 1960/61 only 26 per cent of the participants received extensions for their stay and study in the United States, in 1963/64 there were 56 and in 1964/65, 45 per cent.

[2] W. H. Jansen (reviewing official), *Kentucky at Bogor, a Review after Five Years*, pp. 31-2 (Lexington, Kentucky, January 1963).

Noting this position, Dr. Jansen observes that 'this change in emphasis should probably mean a change in recruiting standards so that scholars are sought who either have research interests specifically in the Indonesian area or research interests that can be applied to Indonesian agricultural and veterinary problems'.[1] With these efforts and increased subsidies for research (see pp. 475-6), significant advances have been made in recent years: in 1964 there were ten graduates working toward their doctorate and two Ph.D.s were awarded.

Extension programmes have been expanded (see pp. 526-9), but continue to suffer from transportation difficulties and shortage of funds.

Since 1958 progress in meeting inadequacies of practical training has been made through the acquisition of the 625-acre Darmaga rubber estate, situated about eight miles west of Bogor. By 1961 it had been decided that this site should not only serve as an experimental farm, but that a good part of it should become a new campus. At the ground-breaking ceremony in April 1961, it was announced that the basic objective was to give the Faculty of Agriculture a broader national function in all three fields of instruction, research and extension. It was also proposed that the current campus and its buildings should later continue to be used to provide instruction in the basic supporting sciences, especially for first-year studies. Since then delays have been caused by the unavailability of building materials and spiralling prices; but towards the end of 1963, the Bogor faculties were reconstituted as an autonomous Institute of Agriculture and Veterinary Science, and particular attention is being given to the development of the new campus. With this, Bogor, like Bandung, will be expected to expand its supporting services to sister institutions all over the country, and to become the nation's leading basic research institution in agriculture and veterinary science.

While estimates of future graduate requirements vary somewhat, all emphasize that needs are great and critical. Thus, Hunter feels that 'there is little doubt that the whole agricultural advisory, extension and research service is in urgent need of overhaul and expansion, probably at all levels, but particularly for field officers'. In the absence of manpower data, he suggests that by analogy, doubling his agricultural manpower proposals for the Philippines, Indonesia might require about 2,000 to 2,500 graduate officers in the field (covering forestry, veterinary science, animal husbandry and fisheries as well as agriculture), supported by a research, specialist and teaching force of about 5,000 graduates. Another estimate places the 1960-70 demand for graduates in agriculture alone at 5,400[2] and in veterinary science at 800 to 1,000 in place of the 130 available in 1959.[3]

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[1] ibid., p. 3.

[2] Frank D. Paterson, *Bogor, The Third Year; a Review of the Work of the University of Kentucky Contract Team at the Faculties of Agriculture and Veterinary Science of the University of Indonesia, Bogor, Indonesia*, p. 10 (University of Kentucky, July 1960).

[3] A. A. Ressang, H. Fischer and R. Muchlis, 'The Indonesian Veterinarian, his Educa-

If revised Ministry estimates for graduate outputs rising from 425 in 1965 to 1,530 in 1969 are met, these anticipated requirements will be surpassed and current trends of enrolments and graduate rates indicate that the higher target may well be hit. Professor Kampto Utomo, of the Bogor Institute, has, in a tentative report on a survey of agricultural faculties in 1964, estimated that, discounting failures, there should by 1967/68 be 662 fifth-year students in twelve of the faculties of agriculture and veterinary science established since 1954. Allowing for a 20 per cent failure rate, it may be assumed that by 1969 there would be around 530 graduates from these faculties. The Bogor Institute admitting 600 new students in 1964, should by then produce more than 500 graduates per year, and Gadjah Mada should be adding at least another 200. The remaining 300 may well be produced by the other seven State faculties and the five private faculties.

On the other hand, it would appear that unless the rate of economic, and in particular agricultural, growth picks up very rapidly in the next few years, serious difficulties may be encountered in providing employment for such a large number of graduates and in supporting them with an adequate number of second-level agricultural assistants. The possibility would seem to underline the importance of the proposal that three-year diplomates might be required to work in the field for at least two years before going on to higher studies. Indeed, the whole position of the *sardjana muda* or *bakaloreat* qualification, including the organization of curricula for this level, may well merit careful re-examination to see whether it might help to balance the outputs of high- and middle-level agricultural manpower.

Education and teacher training

Until 1960 higher teacher training for secondary-school teachers was mainly concentrated in autonomous training colleges and in emergency courses, although between 1953 and 1960 education and teacher-training faculties had been set up at six State universities. Admission to all higher teacher-training courses as a rule required completion of the upper secondary school; two to three years' study and training led to a *sardjana muda*, *bakaloreat* or equivalent qualification, and a total of five years to the *sardjana* or equivalent qualification. The following interim programmes were organized, of which the last continued to operate until 1963:

1. Emergency courses at upper secondary schools (PGSLP) for teachers at the lower secondary level, extending over 18 to 20 months.
2. Four State teacher-training colleges (two in Java, one in Sumatra, and one in Sulawesi).

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tion, Activities and Problems', *Communicationes Veterinariae*, Vol. 3, No. 2, p. 63 (Bogor, Indonesia, Faculty of Veterinary Science, December 1959).

3. The Bandung Correspondence Teacher-Training Institute (BPG), in 1961 reconstituted as a National Teacher-Training Centre.
4. Evening courses combined with day-time teaching practice, mainly for teachers already in service, extending over two to three years for the B I qualification and four to five years for the B II.

Among university faculties, Padjadjaran (at Bandung) was the first to be founded in 1953; and until 1963 it had a number of major national educational research institutes associated with it: the Institute for Educational Research, intended to carry out surveys and investigations of teaching problems in Indonesia and to suggest improvements and solutions; the Institute for Research into Teaching Methods;[1] the Institute for Curriculum Planning; and the Institute for Science Teaching.[1] On the other hand, the Education Faculty of Gadjah Mada, set up in 1955, mainly concentrated on pedagogy as a specialized discipline rather than in educating and training teachers for secondary schools.

In addition there were a number of private teacher-training institutions —in 1963/64 as many as 48 were officially listed—but they include those training teachers of religion, and most of them offer no more than three-year courses leading to the *sardjana muda* qualification.

Towards the end of 1963 all State institutions and courses for education and teacher training were co-ordinated and centralized under a National Teacher Training Institute (IKIP) with four main divisions in Djakarta, Jogjakarta, Bandung and Malang, and twenty-two branch units. Entrance to these, as in the past, requires completion of upper secondary education as a minimum qualification and is selective except for in-service training. Where relevant, previous faculty relationships with universities are maintained in terms of academic co-operation, but policy, administration and finance, and co-ordination of programmes are all centralized under the national institute.

Only incomplete statistical data are available on past teacher-training enrolments and outputs, due as much to the emergency part-time nature of several programmes as to scattered departmental responsibilities. However the following figures give a rough idea of the recent situation and the considerable problems it has posed. In 1960, less than 40 per cent of the secondary public school-teachers were fully qualified and there were over 11,000 vacancies; a very large proportion of all secondary school-teachers were part-time, many doing no more than giving an occasional lecture; and a good number of underqualified teachers (particularly in private secondary schools) comprised university students who had had no training as teachers. Teacher-trainees enrolled in the B I course (private as well as government) from 1958 to 1959 for each of the three years numbered no more than 1,188; 1,602; and 1,546. The total numbers of B I and B II graduates teaching in secondary schools were by 1960 estimated at 900 and 800 respectively; but the output of B I graduates was estimated to be 500 in 1957/58 and 600 in 1958/59. The latter figures suggest that a number of B I graduates either continued to study towards a B II or *sardjana* or left the teaching profession. Education faculty enrolments in 1961/62 came to about 15,500 in State universities and 2,300 in private faculties. In 1964, total enrolments in the various IKIP units and programmes were estimated at no less than 34,600.

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[1] Both these institutes were set up with the assistance of Unesco and the Colombo Plan. Incidentally, it was also at Bandung that a Regional Centre for School Building Research was established under Unesco sponsorship in 1962. It was originally intended to carry out research and provide information in such areas as comparative studies on the planning of school buildings, their design and construction, their maintenance and equipment, and the use of local materials and labour as well as the standardization of school building plans suitable for various parts of Asia.

In view of the great need for secondary school-teachers, the new system is placing greater emphasis on producing and recruiting a large number of junior graduates for teaching posts at the lower secondary level, and later 'up-grading' them through special courses—or after two years' teaching experience, offering them the opportunity to continue studies towards a full degree. However, owing to low salaries generally and a big differential between the scale for the *sardjana muda* and *sardjana* qualification,[1] a considerable proportion of students apparently still try to go on with further studies without a teaching interval, or shift to another vocation.

Official estimates for future outputs of full graduate teachers envisage a very rapid increase from 2,500 in 1965 to 6,250 in 1969 which appears feasible with a combination of guided study and in-service training, provided that not too many stop at the lower level or leave teaching altogether.

Lack of data and uncertainties about effective teaching stock make it impossible to attempt a balanced evaluation of how far such outputs might go to meet future needs. Hunter, counting graduate teacher requirements only for upper secondary schools (general and vocational) suggests outputs rising from 1,600 in 1964/65 to 2,000-2,200 by 1970, for an expected enrolment of 350,000 to 450,000 in 1970. On the other hand, without attempting to assess teacher output requirements, the Unesco team calculated minimum and maximum upper secondary enrolments for 1971 at between 562,000 and 696,000. Considering that at least twice as many teachers will be required for the lower secondary level (which in 1961/62 had nearly thrice the enrolment of the upper secondary level) and that as far as possible it would be desirable that a major proportion of these should be graduates, even Hunter's conservative estimates would seem to suggest that in terms of over-all secondary needs,[2] the official target of 6,250 by 1969 is not aiming

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1. According to recent civil service regulations it took about eight years of service to pass from the *sardjana muda* salary scale to the *sardjana* level, whereas the minimum required study period was only two years.
2. Though, of course, the provision of adequately salaried teaching posts for such numbers may again prove to be another matter. It will certainly not be possible

TABLE 19. Percentage distribution of students by parental occupation at Djakarta faculties, 1953[1]

Parental occupation	Percentage of category to enrolment			
	Economics	Law	Medicine	Total
I. Professors, liberal professions, officers of the army, industrialists, and higher officials	51	46	46	46.4
II. Teachers in secondary schools, merchants, pensioners, and middle-bracket officials	33	42	45	41.5
III. Farmers, teachers of elementary and religious schools, lower officials, and members of the army below the rank of commissioned officer	16	11	9	12.1

1. *Information on Higher Education and Related Questions in Indonesia*, op. cit., p. 34. Based on a sample of 744 students out of an enrolment of 2,730 in faculties of economics, law, medical sciences. The Faculty of Letters was also polled, but responses obtained from only 36 students out of an enrolment of 247.

too high. The crucial problem here is not the possibility of over-production; but whether with such a rate of expansion, quality can be maintained —especially if, as is likely, in the next few years, it remains necessary to contend with a serious shortage of teacher educators.

STUDENTS

While no nation-wide statistics on the socio-economic origins of students are available, a 1953 study of the 'Social Conditions of Students in Djakarta'[1] and a later study, including some data for 1960, of the student population of Gadjah Mada, Jogjakarta,[2] provide some interesting indicators from the nation's two oldest, largest and most highly regarded institutions. Both studies, as was to be expected, emphasize that most students come from upper- and middle-income groups; but the latter shows a relatively significant

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without very big increases in present levels of national expenditure on secondary education.

[1] *Information on Higher Education and Related Questions in Indonesia*, pp. 30-9 (Djakarta, World University Service, National Committee of Indonesia, 1955).

[2] Joseph Fischer, 'The Student Population of a Southeast Asian University: An Indonesian Example', *International Journal of Comparative Sociology*, Vol. II, No. 2, pp. 224-33 (Dharwar, India, Department of Social Anthropology, Karnatak University, September 1961).

TABLE 20. Percentage distribution of Gadjah Mada graduates and new admissions by parental occupation, graduates 1952-60; new admissions 1959/60[1]

Parental occupation	Percentage of category	
	To graduates 1952-60	To new admissions 1959/60
Pension and lower government	32.63	23.23
Higher government	11.07	6.22
Village officials	4.07	4.59
Teachers	18.06	16.80
Police and military	2.33	2.82
Professional	4.07	2.50
Farmers	10.72	17.33
Self and privately employed	15.73	23.19
Artisans and unskilled	1.28	3.27

1. Abstracted from J. Fischer, op. cit., pp. 232 and 233.

and growing proportion of students deriving from farming and artisan families. Owing to the absence of standard occupational categories and the different approaches used, the two sets of data cannot be directly compared.

Table 20 indicates an increase in the farmer and artisan category at Jogjakarta from 12 per cent of graduates during 1952-60 to nearly 21 per cent of new admissions in 1959/60, and a decline in the proportion of students from the bureaucracy. The point is subject to reservations because there may well be variations in the graduation and drop-out rates for the different categories which substantially diminish these apparent trends: there is also no evidence as to what proportion of the farmer category is composed of big landowners. That over 3 per cent of new admissions are from artisan and unskilled parental backgrounds, however, remains significant.

Although the major proportion of students comes from the wealthier section of the population, many must work to support themselves, often even if they are receiving scholarships—for apart from the fact that many of these are partial scholarships, at their top value [Rp.750 ($16.60) per month] they are not sufficient to meet all expenses. The Djakarta study[1] showed that while 51.9 per cent of all students had jobs, 93 per cent[2] of these also received scholarships.

While in 1953 government scholarships, including the special category for veterans, covered about 50 per cent of the total enrolment in State institutions

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[1] *Information on Higher Education and Related Questions in Indonesia*, op. cit., p. 36.

[2] In 1953 a large proportion of students consisted of veterans and most of these received government scholarships.

TABLE 21. Scholarships awarded at six State universities in 1962/63

University	Enrolments	Scholarships	Scholarships percentages of enrolments
Indonesia[1]	12 000[2]	1 982	16.5
Gadjah Mada	15 267	828	5.5
Bandung Institute	5 261	290	5.5
Airlangga	6 213	234	3.7
Sulawesi Utara/Tengah	3 254	87	2.7
Diponegoro, Semarang	3 586	58	1.6
TOTAL	45 581	3 479	7.6

1. Excluding external students and including only the six faculties for which scholarship data are given, the enrolment was only 7,787 and the scholarships percentage of this 25.
2. Approximate.

of higher education, even a high estimate of around 7,000 scholarships awarded in 1961/62 comes to less than 10 per cent of the total enrolment in State universities and academies. The estimate appears to be high because returns from six of the major State universities would seem to suggest an even lower proportion, as indicated by Table 21. This table also shows that both the absolute number and percentages of scholarships awarded at the University of Indonesia were much higher than at other institutions, and that the percentages of scholarships given at the two newer universities outside Java are especially low.

In recent years available central government scholarship funds have in principle been allocated on the basis of 55 per cent for medicine, agriculture and engineering, 23 per cent for higher teacher training, and 22 per cent for arts and social sciences. However, individual returns from three State universities for 1962/63 again contrast interestingly with the situation in 1954/55, as shown in Table 22, and suggest a varying balance among different institutions.

No explanations are available for such contrasts as 100 per cent of the medical students at the University of Indonesia receiving scholarships and only 4 and 9 per cent respectively at Gadjah Mada and Airlangga. But it is clear that, with the possible exception of medicine, the proportion of students receiving State scholarships has gone down in all main fields of study, even when no account is taken of the earlier special veteran grants. Furthermore, the figures also illustrate that a relatively small proportion of total scholarship funds can realize a fair coverage in fields with comparatively small enrolments (e.g., veterinary science), and that even big proportionate allocations for the large enrolments in arts and social sciences can have only

Table 22. Percentage distribution of scholarships by main fields of study, 1954/55[1] and 1962/63

Main field of study	1954/55 percentages, all faculties		1962/63 percentages					
			Indonesia		Gadjah Mada		Airlangga	
	Of enrolment	Of total scholarships	Of enrolment	Of total scholarships	Of enrolment	Of total scholarships	Of enrolment	Of total scholarships
Medicine[2]	18	21	100	54	4	10	9	56
Agriculture	56	10	50	22	20	17	—	—
Veterinary science	56	5	39	10	26	9	—	—
Technology	30	23	—	—	9	14	—	—
Mathematics and natural sciences	28	4	—	—	13	7	—	—
Arts and social sciences[3]	18	37	7[4]	14	3	43	2	44

[1] Abstracted from *Information on Higher Education and Related Questions in Indonesia*, op. cit., pp. 8-11. These figures, while covering all State university faculties, except the Bandung Academy of Physical Education of the University of Indonesia, do not include data on higher teacher training and apparently exclude both special veteran and provincial or regional scholarships.

[2] Includes dentistry and pharmacy for all cases except the University of Indonesia.

[3] Includes enrolments and scholarships for 1962/63 percentages.

[4] Does not take account of external students in law and economics.

a marginal effect on the composition of these—in the case of Gadjah Mada and Airlangga, an investment of over 43 per cent of available funds reaches no more than 2 to 3 per cent of their enrolments in this field. It should, however, be added that, since most scholarships are concentrated in the third and fourth year and the heaviest arts enrolments are in the first year, the impact is a little greater than these figures suggest.

In terms of their value, too, there has been a backward trend in the award of scholarships. Although the nominal value of full scholarships more than doubled between 1953 and 1962 from Rp.343 to Rp.750 per month, the cost of living range rose by over four times from Rp.300-500 to Rp.1,200-2,000. Subsequent inflation has made the situation still worse (although the government continues to subsidize the purchase of foreign textbooks by 50 per cent of their cost) and there is abundant evidence that undernourishment is responsible for the failure of many students.[1]

Until 1963, apart from the bonding of all medical students, scholarship holders were required to make their services available for placement by the government for two years plus the duration of their scholarships; but since then, according to Law 8, all full graduates are required to be available for a minimum of three years' government service. Bonding has thus been tied to the privilege of higher studies, rather than financial aid received; but data on the implementation of this new system do not permit an evaluation of its effectiveness, although, in principle, it may well be held to be more equitable.

While a series of private and co-operative lodging arrangements have been made (including several by regional foundations[2]) to supplement accommodation provided by university hostels, needs far surpass facilities: overcrowding and malnutrition are rampant, provisions for sports and relaxation almost non-existent. Private boarding houses—occasionally organized on a co-operative basis, but more often in contract with the university concerned—receive subsidies on varying patterns, often including certain basic foods at rates established for civil servants; but as Table 23 shows, this, with the exception of Jogjakarta, still leaves most students to fend for themselves. Those who are not lucky enough to be wealthy or to live with relatives, must somehow meet high expenses or exist by cutting down on even basic needs, including food, clothing and educational materials.

But while most of the marginal living conditions are due to poverty, high prices and shortage of material resources, some also result from lack of organization and misplaced extravagance; in 1959 at a Jogjakarta hostel there were 20 servants for 50 students, at another in 1962 there were 40 for 80 students.

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[1] See *Kentucky at Bogor,* op. cit., p. 19.

[2] The Indonesian equivalent of the term 'foundation' is apparently at least as widespread and popular as in the United States. Any legally recognized body which has educational or charitable objectives may be referred to as a foundation.

TABLE 23. Student lodging in three university centres: percentages of enrolment by category of accommodation, 1963[1]

University centre	In hostels	In private boarding houses	With relatives or other families	Other arrangements
	%	%	%	%
Djakarta[2]	15	25	55	5
Jogjakarta	25	50	20	5
Surabaja	10	35	30	25

1. Abstracted from S. Chithamparanathan, *WUS and Higher Education in Southeast Asia*, p. 54 (Geneva, WUS, 1963).
2. Excludes external student enrolments in percentage calculations.

Accordingly, it is not surprising that student health is a serious problem as a consequence of malnutrition and poor sanitation. Anaemia and intestinal disorders are widespread and the incidence of tuberculosis high.[1] But despite a variety of university and co-operative efforts, the facilities of health service arrangements have largely remained limited to a small number of fee-paying members: a new scheme to establish health foundations at each State university under the supervision of the Student Affairs Bureau of the Ministry of Higher Education and Science is intended to ensure an adequate preventive service and to improve the extent of aid for treatment.

Student activities

Each university has a student council with compulsory membership and a 'senate' branch for each faculty. There are also a number of voluntary religious and politically-affiliated student organizations at the local as well as national level but the student councils and their branches undertake basic responsibility for student welfare. The representatives of both council and senate are seriously consulted by university and faculty authorities, although with the passing of the veterans' generation, the students have perhaps shown less maturity in their interests, efforts and demands than in the past. Thus, while university cafeterias, bookstores and certain other facilities are still mainly managed by student councils on a co-operative basis, the management of hostels has largely reverted to direct control by university authorities and their officials. The most impressive single instance of the student councils' efforts to organize student endeavour to contribute to meeting the manifold problems of higher education has been the student-organized Gadjah Mada Publishing Foundation, established with the help of the University Alumni Association and World University Service. Leading the way in similar efforts elsewhere to meet the shortage of Indonesian textbooks, this project has produced several hundred mimeographed and printed textual materials for schools as well as university courses. In 1961/62 it employed a staff of around 100, of whom nearly 80 per cent were students working part-time, and it had a turnover of more than Rp.2 million ($44,500).

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[1] Though probably exaggerated when 'One respected scientist in the College of Veterinary Sciences (Bogor) ventured that 70 per cent of the presently enrolled students already have or are liable to have tuberculosis . . .'—*Kentucky at Bogor*, op. cit., p. 20.

At the national level, until 1959, the federation of representatives of voluntary religious and Chinese student organizations[1] (PPMI) was generally recognized as the national union of students,[2] although there was also a voluntary organization of university and secondary-school students (IPPI), in which the latter predominated numerically, the former in leadership. However, since 1959, an All-Indonesian University Students' Union (MMI) has come into existence as a co-ordinating body for the official student councils and their faculty senates. Although the bases for co-operation between PPMI, which prides itself on the voluntary basis of its membership, and the MMI, which claims universality and responsibility for all effective local student welfare work, remain ambiguous, they have so far been fortunate in not developing destructive rivalries.

STAFFING

Some major problems of staffing and efforts to train graduates under contract programmes have already been considered (pp. 500-18), it only remains to complete the over-all picture of appointments and service conditions. Statistics on staff strengths and staff/student ratios are not given. These would be more misleading than informative since while nominally somewhat over 50 per cent of the staff are 'ordinary' or 'full-time' teachers, this is an administrative rather than functional designation; nearly all teachers are in fact part-time with varied but heavy occupations and duties outside the institution where they hold permanent appointments. A major proportion of the staff consists of assistants or instructors, most of whom are senior students in their last two years of *sardjana* studies. In 1963, at fifteen of the major State universities, 68 per cent of the total teaching staff—72 per cent of the 'ordinary' and 60 per cent of the 'extraordinary'—were assistants. Available data do not permit any calculation of full-time equivalents of part-time work. In fact most teaching is still done through lectures to classes with an attendance varying from 100 to 1,000: the use of sound amplification is frequently necessary. Seminars and individual tuition are, naturally enough, largely limited to senior classes and practicals.

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[1] After 1959, it has apparently also begun to accept representation from a number of political student organizations.

[2] The world is now familiar with the role played by Indonesian students in recent political events.

Fully aware of the problems raised by this situation, the 1963 Conference of University Presidents strongly recommended that more training schemes to upgrade junior teachers should be undertaken by the older universities and short in-service training courses be organized for university administrators up to the rank of faculty deans. The first course of this type was set up by the Ministry of Higher Education and Science in September 1963. To stimulate research, the conference suggested that more research grants should be provided and promotion made dependent on research performance as well as seniority and other qualifications. It added that a 'science award' should be instituted for outstanding achievements in education, research and social service in the form of a gold medal and a substantial grant of money. And most important, although the conference did not go so far as to accept Dr. Noble's recommendation that 'present teacher salaries should be multiplied by ten',[1] it proposed substantial increases in basic monthly salaries of up to 150 per cent, and in the hourly fee for additional lectures, exceeding the maximum load, from Rp.150 to Rp.225 per hour.

Basic salary scales in 1961 at their starting levels stood at between $25 and $58, but various allowances and honoraria[2] doubled or trebled these in terms of gross income. Table 24 gives the 1960 basic salary ranges, and the new maxima adopted in 1963, with some consequential increase in maximum teaching load (which before 1961 had been reported at an average of six hours per week for professors).

While apparently substantial increases in basic salary have been made at the official exchange rate, these are more than nullified by greatly increased costs of living.

On the other hand the teachers' lot is shared by most other civil servants: the secretary-general of a ministry or a governor of a province receives about the same basic salary as a professor. It will therefore be difficult to achieve any real improvement without very substantial increases in the national budget to cover other civil service salary scales as well as those for teachers. Under these circumstances Indonesia is fortunate indeed in being able to secure a rapidly increasing body of even part-time teachers, who in view of the country's problems and needs are ready to make sacrifices.

Candidates continue to be found for affiliated staff-training programmes within the country set up by the University of Indonesia in faculties of medicine, economics and psychology; by the Bogor Institute of Agriculture

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[1] Elmer R. Noble, *An Appraisal of the State Universities of Indonesia*, prepared for the Department of Education Instruction and Culture, and The International Cooperation Administration, p. 19 (Djakarta, 1960).

[2] Including additional lecture fees; 25 per cent of basic for wife; 10 per cent for each child; some, rather scarce, housing for senior staff members at 10 per cent of basic; and various subsidized items of food and other articles of daily use.

TABLE 24. State university salary scale, 1961 and 1963, and maximum weekly teaching loads, 1963

Academic rank	1961 salaries (per month)				1963	
	In dollars[1]		Ratio to 1960 *per capita* income		Maximum teaching hours per week[2]	Maximum salaries (per month) dollars[1]
	Min.	Max.	Min.	Max.		
Assistant	25	57	5	11	18	96
Junior lecturer	29	66	6	13	16	111
Lecturer	41	70	8	14	14	115
Senior lecturer	50	75	10	15	12	133
Professor	58	85	12	17	10	133

1. At U.S.$1 = Rp.45.
2. Additional hours remunerated at the rate of Rp.225.

and Veterinary Science; by Padjadjaran University in education and teacher training; by Gadjah Mada in economics, education and medicine; by Airlangga in medicine and education; by the Bandung Institute in science and engineering. General assistance programmes from the older to the new State universities include the provision of visiting professors, who spend so much time commuting by air that they have been called 'flying professors'. Private institutions of higher education depend to a large extent on part-time teaching by the staff of State universities, offering honoraria which enable these teachers to earn more than their basic salaries in a month with a few weekly hours of lecturing.

But until the funds are found to change basic circumstances, the university teacher will also continue to be compelled to overload himself with routine lectures. What will remain surprising will be not deficiencies in the total educational process and in research, but how much is achieved in spite of serious drawbacks.

EXTENSION AND EXTRA-MURAL WORK

Extension and extra-mural work by Indonesian institutions of higher education and students may be considered under two heads: (1) contributions to community development and agricultural extension; and (2) educational extension, including university student teachers for secondary schools as well as special courses for external students, correspondence courses and affiliation programmes to train teachers for new foundations at the older universities.

(1) The seventh directive of the 'Seven Basic Efforts' (Sapta Usaha Tama), announced in 1959 by the Minister of Education, stresses the importance of

forming 'work groups' in senior high schools and universities. It is being implemented by encouraging all universities to undertake social service work on a planned basis, and placing this task alongside the education, instruction and research functions of the university. Apart from various special programmes organized by university faculties and student organizations, there are two main channels for setting up such projects: (a) consultation between the president of a university and a provincial executive body (*pantja tunggal*) of four public officials and a representative of the National Front (which groups all political parties and other associations and organizations); (b) the MIPI Institute of Economic and Social Research (LEKNAS), which centrally organizes social service programmes with the participation of universities (notably the University of Indonesia, Bogor Institute of Agriculture and Veterinary Science, Bandung Institute of Technology, Gadjah Mada) and in co-operation with relevant ministries.

One recent example under the first scheme for which the Ministry of Agriculture and Agrarian Affairs (now a Compartment) gave its support is a special survey for land reclamation started in 1963. Nine-man teams of assistant lecturers including, in addition to agriculturists, engineers, doctors and sociologists or economists, and later joined by graduate students, spent two to three months in the field on this project. Personnel for the teams came mainly from the Bogor Institute and Gadjah Mada, but plans for the future also envisage the participation of other agricultural faculties (Makasar, Kalimantan, Medan and South Sulawesi).

An illustration of the second category is provided by a project which developed out of an experimental venture of the Bogor Faculty of Agriculture. Some twelve of its students worked on demonstration projects in three villages, 50 kilometres east of Djakarta, covering a total of 100 hectares of paddy fields. The scheme involved improving tillage, irrigation, fertilizer use, seeds and pest control; but good irrigation areas were chosen to start with and special attention was given to the use of fertilizers. In the two harvests reaped during the year of this project, a 100 per cent increase of output was achieved during the rainy season and only a little less for the dry irrigation harvest. In addition to demonstration, the project also aimed at providing students with experience and initiation into research in the field. Growing out of this experiment, a scheme was then formulated under which 440 senior students from five universities were to go out to work for three to five months in 220 centres in Java, Bali, South and North Sumatra (and later possibly also in East Kalimantan). To finance the scheme it was proposed that the Ministry of Agriculture should bear 90 per cent of the total cost (Rp.70 million) and the Ministry of Higher Education the remaining 10 per cent.

(2) Apart from the development of courses for both external and part-time students, the most impressive educational extension efforts have been a

correspondence scheme for teacher training and the organization of university students as teachers in secondary schools outside Java.

The Bandung Correspondence Teacher Training Institute (BPG), functioning from 1950 to 1961, developed in response to an acute shortage of teachers and insufficient resources to expand normal training facilities. Apart from lack of finance and other material provisions, as the 1952 report on the correspondence courses pointed out, elementary education could not be expanded rapidly enough owing to lack of teachers, and the number of teacher-training colleges could not be increased rapidly enough owing to the shortage of training personnel for them. The institute provided instruction materials on an individual as well as group basis both to teachers in service and to those wishing to qualify as teachers at either the training college or primary-school level. Lessons mailed weekly to students totalled 166,000 in 1952, including 110,000 copies of 48-page lessons for the first three levels or instruction and 56,000 copies of 64-page lessons for the next three levels. Unfortunately information on examination procedures and annual outputs of graduates is not available; but there is little doubt that without such an action the expansion of primary education achieved in the 1950's would have been greatly retarded.

The idea of employing university students as teachers for secondary schools was first elaborated by three student bodies: the central office of the Student Council of Gadjah Mada University, the IPPI[1] and PPMI.[1] Thereafter, on the basis of recommendations made by a commission comprising representatives of the Ministry of Education and the three student organizations, the Ministry set up a board to administer the project from Jogjakarta with a chairman and secretary-general, which carried on its work until September 1962.

With the main objective of assisting the government to cope with serious secondary teacher shortages, the project accepted students who, owing to financial circumstances, were obliged to interrupt their studies after they had completed at least the propaedeutic year in their faculty.[2] Conditions of service, for which a small but in those days living wage was offered, stipulated that the accepted candidate spend at least two consecutive years teaching outside Java and be prepared for a possible extension to three years. On completion of this service, he was entitled to continue studies at a teacher-training college or faculty of his own choice with the appropriate status and salary of a civil servant for a period equivalent to that of his service. An extension of this period could be given if his studies had been satisfactory but requirements for a degree had not been completed. Teacher graduates at both the *sardjana muda* and *sardjana* levels were then channelled into appropriate State schools or government departments. They were required to be available for such service for a minimum of two years, more if they had received an extension for the completion of their studies.

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[1] See 'Student Activities', p. 523.
[2] Students of teacher-training colleges and faculties were not accepted.

As pointed out in an unpublished note by Mr. Koesnadi Hardjasoemantri, the Secretary-General of the Board, the project actually produced three interrelated positive results: it helped to meet teacher shortage; it enabled many students to complete their higher studies after an interruption instead of discontinuing them permanently; and it developed the participant's character, qualities of leadership, and understanding of the problems and needs of the country. Between 1952 and 1955 University of Indonesia students joined Jogjakarta students in the project; and by 1960 participants were coming from eight State universities. Between 1952 and 1963, the project channelled 1,609 students (the number increasing from only 41 during 1951-55 to 302 during 1961-63) to temporary teaching positions at 167 secondary schools in 103 towns in islands other than Java.

In this way secondary schools outside Java about to close down for lack of teachers were kept open, the assistance given in establishing more schools made it possible to set up teacher-training centres and universities outside Java; the nation-wide spread of secondary education made people more conscious of the value of education and also promoted general development in outlying regions; students of different geographical and ethnic backgrounds coming together in different parts of the country for a joint enterprise of national importance strengthened the sense of national identity and loyalty.

Very little information is available on programmes for external students. Most students of private universities attend part-time and lectures for them are organized mainly in the evenings; this is also the case for the external students in economics and law at the University of Indonesia who in 1963/64 numbered more than 5,500 out of a total enrolment of about 11,000 (though a good proportion also attend early morning lectures). At Padjadjaran University, correspondence courses have been initiated for publicity and journalism and for public and business administration. Considering the success of the Bandung teacher-training correspondence scheme, the heavy pressure on university entrance from secondary graduates and the overcrowding of facilities, there may well be considerable room for developing such teaching by correspondence.

STUDY ABROAD

Available information shows that while in 1958/59 there were just over 1,500 Indonesian students studying in fifteen countries, in1963/64 the number increased to nearly 2,800 in twenty countries. Many of the earlier group had gone abroad on Indonesian government scholarships, but since 1958, apart from some private students[1] and a few government scholars completing

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[1] Foreign exchange for private students was officially allowed at the rate of U.S.$1= Rp.517.50.

TABLE 25. Indonesian students abroad by country of study, 1958/59 and 1963/64

Country of study	1958/59[1]	1963/64[2]
Australia	282	—
Austria	8	—
Belgium	14	—
Bulgaria	—	20
Canada	49	8
China	...	25
Czechoslovakia	60	219
France	20	45
Germany (Dem. Rep.)	...	73
Germany (Fed. Rep.)	—	284
Holy See	18	—
Hungary	—	21
India	16	3
Iraq	—	3
Italy	—	13
Japan	29	369
Netherlands	417	—
Poland	—	25
Rumania	9	23
Sweden	—	8
Switzerland	19	5
U.A.R.	54	165
United Kingdom	35	19
U.S.A.	526	800
U.S.S.R.	—	656
TOTAL	1 556	2 784

... Data not available.

1. From *Study Abroad, 1962*, p. 680 (Paris, Unesco, 1961).
2. From Ministry of Higher Education and Science, Government of Indonesia, Djakarta.

studies, all others were receiving scholarships either from the country of their study or some international agency. It is also to be noted that in 1963/64 there was a very steep increase in the number of Indonesians studying in socialist countries, and that, due to political circumstances, apparently no students remained in Australia or the Netherlands, where previously a considerable proportion of those abroad had been concentrated.

Details on distribution by subjects of study are not available for all recipient countries, but it is estimated that about 70 per cent of the students abroad (Table 25) were pursuing higher studies in technological and agricultural subjects. However, data on 680 Indonesians studying in the United States in 1962/63, of whom about 25 per cent were undergraduates, show a much larger proportion in other fields, particularly in natural and social sciences, as follows: agriculture, 25; business administration, 69; Education, 38; engineering, 96; humanities, 88; medicine, 43; natural sciences, 144; social sciences, 160; other, 17.

The U.S.A. Economic Survey Team to Indonesia[1] recommended that aid for Indonesians to study in the United States should, in addition to engineering, concentrate on graduate programmes in the sciences, business and public administration, statistics and applied economics, with courses extending over one-and-a-half to two years, but initially for no more than one year. The last proviso is in line with the Indonesian plan estimate that while study abroad cost about $3,000 per student per year, even after careful selection it might be expected that about 20 per cent of those sent abroad would fail to complete their studies satisfactorily.

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[1] U.S.A. Economic Survey Team to Indonesia, *Indonesia—Perspective and Proposals for U.S.A. Economic Aid* (New Haven, Connecticut, Yale University, 1963).

Until 1961, Indonesians returning from study abroad were subject to an obligatory service of three times the number of years spent abroad: thereafter the requirement was changed to five years plus the period spent abroad.

Although the Eight-Year Plan had proposed that the government should send more students abroad, in fact, owing to shortages of funds and foreign exchange, the scholarship programme has been curtailed, and reliance has been placed primarily on foreign aid. As Table 25 shows, such aid has been fairly generous; and by 1967 even with a 20 per cent wastage rate and some allowance for prolonged study, Indonesia should be receiving back some 2,500 highly qualified graduates to supplement those produced by its own universities.

EDUCATIONAL DEVELOPMENT OBJECTIVES AND FINANCE

As most basic current objectives of educational development have been indicated in preceding sections and specific plan targets have changed, only very brief reference is here made to the general aims enunciated in the plan. The three basic educational targets of the plan are: (a) the universalization of six years of compulsory primary education and extension of adult literacy and general education; (b) the expansion of facilities for vocational/technical secondary education, leading to a very considerable increase of skilled persons; (c) an increase in the output of university graduates, especially in the technological and medical fields. General educational aims allied to these objectives include increased emphasis on practical work at all stages of education; the abolition of discriminatory attitudes to manual labour; the encouragement of social responsibility and the strengthening of patriotism and national unity.

Of the Rp.16,261 million the plan allocates for investment in educational development, nearly 57 per cent is set aside for higher education, with secondary general and teacher training lagging behind with less than 8 per cent.

On the other hand, as Table 27 shows, recurrent expenditure for different levels and types of education presents a very different pattern, with primary education[1] absorbing about 62 per cent of total expenditure.

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[1] Includes allocation from the Home Ministry which in many statistics on education is completely neglected. Also see p. 532.

TABLE 26. Plan allocations for educational investment

Type of education	Allocation (million rupiah)	Percentage of total
Primary education	2 625	16.1
Secondary general and teacher training	1 228	7.6
Technical/vocational secondary and academies	2 753	17.0
Higher education (State universities and private institutions)	9 232	56.7
Adult education	423	2.6
TOTAL	16 261	100.0

If educational expenditures between 1950 and 1960 are compared with the relevant total national budgets, it is found that the allocation through the Ministry of Basic Education and Culture fluctuates between 3 and 6.4 per cent, while the plan proposes that a minimum of at least 15 per cent should be made available in any case, and that, when national security is assured, about 25 per cent should be provided. In order to obtain a complete picture of educational expenditure, account must also be taken of primary education allocations of the Home Ministry and expenditure on vocational/technical education by several other ministries. While there are no collated data on the latter, the last available figure for primary education expenditure by the Home Ministry makes the point clear. In 1959, while the Ministry of Education had less than 6 per cent of the national budget at its disposal, the Home Ministry added more than 8 per cent for primary education, bringing the total to over 14 per cent.[1] This apparently generous allocation in fact left *per capita* expenditure on public education at a very low level: less than $8 per year for primary and $284 per year for higher education.

No breakdowns of expenditure on higher education by faculty or main field of study are available; but statistics given in the plan provide some other interesting data. For 1960 it was estimated that the total provision for State universities amounting to about Rp.500,000 million, included 20 per cent for construction, 37 per cent for salaries, and 43 per cent for equipment and other expenditure. The recurrent expenditure of around Rp.400,000 million represented about 60 per cent of what had been requested by the universities. In terms of per student annual recurrent costs, while the average for 1960 was Rp.10,340, there were big variations for individual universities: for instance, *per capita* annual costs at the University of Indonesia stood at Rp.14,420 as against Rp.8,060 at Gadjah Mada and Rp.7,060 at the

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[1] Actual figures, from Department of General Education (million rupiahs): National Budget, 28,569; Ministry of Education, 1,692; Home Ministry, 2,438.385.

TABLE 27. Recurrent expenditure on different levels and types of public education, 1961/62[1]

Level and type of education	Enrolment	Expenditure				Percentage of total expenditure
		Salaries	Other	Total	Per student	
Primary	8 618 139	2 999 500	92 768	3 092 268	359	62.5
Lower secondary:						
General	242 181	249 143	14 254	263 397	1 088	5.3
Vocational	112 685	299 907	46 366	346 273	3 073	7.0
Upper secondary:						
General	58 204	98 443	11 036	109 479	1 881	2.2
Vocational	29 067	56 044	17 343	73 387	2 525[2]	1.5
Teacher training:						
(a) General	30 988	197 771	10 543	208 314	6 722	4.2
(b) Technical	3 320	24 145	7 825	31 970	9 630	0.6
Higher education	65 000	438 000	391 000	829 000	12 754	16.7
TOTAL	9 159 584	4 362 953	591 135	4 954 088	540	100.0

[1] Data abstracted from the URAT report on Indonesia. These, it should be noted, have been adjusted for various factors and, therefore, do not tally with statistics covering the same ground earlier in the URAT report. Like other statistics in this profile, these, too, must be taken only as very rough approximations involving some bold and possibly incorrect guesses.

[2] No explanation is offered for the remarkable fact that the cost of vocational education at the lower secondary level is significantly higher than at the upper secondary level.

Bandung Institute of Technology. These differences are largely due to higher proportional staff costs at the University of Indonesia, which at that time had the heaviest load of affiliation services to new and emerging universities; but even then it seems strange that the Bandung Institute should have been required to operate on half the per student allocation for the University of Indonesia.

Specific plan allocations for the development of university faculties and departments are so vague that it is not possible to obtain any idea of their relative magnitude or adequacy. But again, whereas the eight State universities had requested over Rp.10,243 million to meet construction costs for the development of their facilities between 1960 and 1966, the plan provides for a total higher education development investment of Rp.9,232 million between 1961 and 1969. The specific plan allocations make no mention of provisions for the establishment of new State universities, and it has been seen that in fact their number has grown from eight in 1960 to twenty-eight in 1964. Thus it is not surprising to find that, with the added impact of steep inflation, the 1963 budget for twenty-seven State universities involves a total expenditure of over Rp.4,000 million. On the other hand, allocations for established institutions were at most doubled, while prices soared well over threefold. It is therefore quite evident that what Professor Poesponegoro, chairman of the Presidium of the University of Indonesia, said in February 1959 is even more true today:

'We have tried on a number of occasions to calculate the cost of educating a student in general, and also to make such a calculation for a law, medical, technical student, etc. These efforts have invariably failed because of no balance between the budget and the needs of the University of Indonesia. . . .

'The question of the budget is always a headache for the university, for the following main reasons: (1) the fluctuation in the prices of goods; (2) with the exception of the years 1958 and 1959, the budgets have only been known about half way through the budget year with the possibility that further cuts may be made if a new cabinet comes into office; (3) during roughly the last two years, purchases of equipment from abroad have no longer been permitted; (4) up to the present day, a budget, which could make a well-planned development possible, has been proposed each year, and great hopes have been placed in them, but each year with the disappointment that only about a quarter or a third of the entire proposed budget has been agreed upon. . . .

'A well-planned development is thereby rendered impossible, and it is even extremely difficult to maintain the present status at the respective faculties.

'May we conclude this report with a question, one which comes from the very bottom of our heart: "Has the time not arrived yet to determine the role of the universities in building up the country? Would it not be of great benefit to invest more capital in the universities?"'

'The answer is left to the government.'[1]

It is in these circumstances that recommendations to improve the quality of facilities or to raise staff salaries to reasonable levels take on an air of unreality. Nevertheless, in the face of the continuous and relentless growth of sheer numbers it is difficult to avoid the feeling that without such measures the price to be paid in poor quality and administrative confusion will indeed be heavy.

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1. (a) *Annual Report 1957/1958, University of Indonesia*, pp. 32-40. Address of the chairman of the three-man interim presidium, Professor Dr. Soedjono D. Poesponegoro (Djakarta, 14 February 1959). (b) As seen, the Eight-Year Plan did emphasize the role of universities, but the subsequent deterioration in the economic situation accompanied by rapid expansion has made things even more difficult for universities.

Philippines

BACKGROUND

LAND AND PEOPLE

The Republic of the Philippines, consisting of some 7,000 islands extending over an area of about 115,600 square miles, is strategically located between the China Sea and the Pacific Ocean. The main cluster of islands curves southwards from about 600 miles south of Japan, to about 400 miles south-west of the Asian mainland. Other islands of the country rim the southern and western borders of the Sulu Sea, and at their south-western extremity border on the territorial waters of North Borneo. The coastline of 11,440 miles embraces more than thirty good harbours: of these Manila Bay, with an area of 770 square miles and a coastline of 120 miles, is one of the finest and most beautiful harbours in the world: a claim often made, but not always so clearly demonstrable.

Most of the islands are very small and uninhabited; only some 3,000 have been named, and eleven of them contain 95 per cent of the land area, with Luzon (42,766 square miles) in the north and Mindanao (39,351 square miles) in the south together comprising about 67 per cent of the land mass. Between them lie Mindoro and seven moderately large islands forming the circular Visayas cluster: Panay, Negros, Cebu, Bohol. Leyte, Amar and Masbate. The long dagger-like island of Palawan points toward North Borneo along the north-western border of the Sulu Sea, and the Sulu Archipelago, curving toward the eastern tip of North Borneo, separates the Sulu from the Celebes Sea.

The population of the country according to the 1960 Census, had reached a total of about 27,425,000, yielding an average density of about 237 per square mile. Between 1957 and 1962 the population has been increasing at the annual rate of nearly 3 per cent, and for the total twenty-year period of 1957 to 1977, has been estimated as likely to average 3.2 per cent,[1] at which rate the population would double every twenty-two years. As in other countries of the region, the actual population densities vary considerably: while Luzon and Mindanao contain a major proportion of the population as well as of the land mass, population distribution within these areas varies greatly; and well over 3 million people, forming nearly 12 per cent of the total population, are to be found in the metropolitan complex of Manila, Quezon City, Luzon and Rizal. Other pockets of concentration, with an average of well over 230 people per square mile are found along the north-western coastal area of Luzon, in its south-eastern extended tip, and in Negros, Cebu, Bohol and Leyte. Outside Luzon, which has more than half the country's all-weather motor roads and nearly all of its railway track, insufficient transport facilities and inadequate lines of communication tend to confirm the demographic contrasts and present serious difficulties for the implementation of development plans and the smooth operation of administrative procedures.

The major islands comprise a mixture of large alluvial plains (the largest in the centre of Luzon extending over nearly 125 miles from north to south and containing the chief metropolitan area of Manila, Quezon City—which recently replaced Manila as the capital—and Rizal), coarse grass and parkland, mountain ranges, hilly regions, and a few large marshy areas, with abrupt transitions between highlands and lowlands. Although less than one-fourth of the total land area is under cultivation, the country as a whole presents a picture of luxurious tropical vegetation, and the mountainous regions are covered with a dense growth of valuable timber; some 42,000 square miles are covered by forests, 11,000 square miles by terraced cultivation, and 27,000 square miles consist of grass and parkland. Above the plateaux, table-lands and hills of the uplands, there are a variety of mountain ridges and peaks ranging from 6,000 to nearly 13,000 feet, most of volcanic origin and some still active. Nearly all principal islands possess partially navigable rivers—of which, at 330 miles, the longest is the Rio Grande of Mindanao—and the larger islands have beautiful lakes, of which Laguna de Bay in central Luzon, with Los Baños (the centre of higher education, training and research in agriculture) situated on its southernmost point, is by far the most impressive.

The climate of the country is influenced by the Asian land mass, the trade winds and the archipelago's own mountain masses in such a way that, although variations are not great, they are more marked from west to east than from north to south. In the east, there is hardly any dry season: the months of November to January receive an average of 15 to 20 inches of rain, but as a rule no month gets less than 4 inches, which is important in that it increases opportunities of double cropping. On the other hand, in the western area nearly all the rainfall comes from the south-west monsoon between the months of May and October; the remaining months are comparatively dry. Seasonal temperature variations are greatest in the central lowlands and the Cagayan river valley of Luzon, where they range from a minimum of about 60°F. to a maximum of 100°F. Cyclones and typhoons cross the northern part of the country at every season, but with greatest frequency and violence during July and November, when from time to time catastrophic damage has been caused.

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[1] *Population Growth and Manpower in the Philippines, a Joint Study by the United Nations and the Government of the Philippines*, pp. 7-8 (New York, United Nations. ST/SOA/Ser. A/32, 1960).

Agricultural produce in 1964 accounted for about one-third of the national income. Rice and corn are staple foods in different parts of the country, but the former has to be imported in considerable quantity to meet deficiencies. Other food crops include beans, vegetables, coffee, cacao, fruits and nuts. Copra, coconut oil, sugar-cane, abaca (a kind of hemp), tobacco and timber products are all main sources of income. While outputs have been increasing since the war, productivity per unit of labour and land is still low, due to poor farming techniques which, in turn, are as much due to social factors (see p. 544) as shortages of fertilizer and inadequate soil conservation.

Mineral resources similarly remain to be more fully exploited as well as explored. The most significant outputs are of gold, silver, chromite and manganese ore. Production of iron ore has been increased; and other metals and non-metals mined include copper, lead, zinc, quicksilver and coal. Some prospecting for oil has been carried out, but no exploitation has yet been attempted. There are considerable potential sources of hydroelectric power, and in addition to three plants in operation, two are now being built at Bulacan and on the Bataan peninsula.

Anthropologically, the Philippines presents a variety of ethnic groupings that perhaps surpasses even that of Indonesia, though these have not been the subject of as much study. The intermingling of races and ethnic groups —ranging from the aboriginal, through the Proto-Malay, Malay and Indonesian, to the Chinese and European (mainly Spanish)—today shows itself in types bearing every degree of intermixture and transition, so that, with but few exceptions, generalizations about ethnic groups can be made only in terms of an average of dominant features.

The aboriginal people were followed by Malays in their general southward migration from the south-eastern part of the continent of Asia, bringing Indian and Chinese influences with them (also see profiles of Indonesia and Malaysia). Most of these are now Christians forming over 90 per cent of the total population; but there are others who retain the Muslim faith. The majority of the Muslim Filipinos are descendants of Malays converted by a relatively small number of outsiders from Sumatra and the Malay peninsula, who came to the Philippines by way of Borneo some time after the fourteenth century, bringing influences of Arabian and Straits Malay culture with them.

There seems to be little doubt that there was a Chinese settlement in Luzon before the arrival of the Spaniards at the beginning of the sixteenth century. Subsequently, while the numbers of Chinese increased during certain periods, they were also drastically cut down by three major massacres following insurrections against the Spaniards in the seventeenth century, and by large-scale expulsions in the eighteenth century. Today the Chinese are estimated to number less than 1 per cent of the population, but until quite recently they controlled most of the retail trade and commercial life of the country. Since intermarriage between the Chinese men and Filipino women (especially Tagal) was far from infrequent, there are also a substantial number of assimilated Sino-Filipinos—variously estimated at between 500,000 and 900,000—and it is not often realized that from their ranks have sprung several famous Filipinos. Nevertheless, the Chinese influence was largely limited to the commercial life of both urban and rural areas; and their cultural traditions remained restricted to the ingroups of those Chinese who lived as distinct colonies, regarding themselves as Chinese citizens even if they did not claim a Chinese language as their mother tongue.[1]

While the Spaniards, between the beginning of the sixteenth and the end of the nineteenth century, exerted a strong religious and cultural influence, ethnologically their main impact is found in the fact that the élite of *caciques* (feudal chiefs and landlords) are frequently of mixed Filipino and Spanish blood. The authority of the *caciques* as a class originated from Spanish rule, but was economically and politically consolidated during the American régime by the crucial role they played in organizing the production of raw materials for the American market; and today as a group, they still strongly influence Congress, obstruct land reform and champion the Spanish language and traditions.

Linguistically, the Philippines is almost entirely populated by native speakers of related, but not always mutually intelligible, languages of the Western Malayo-Polynesian group.[2]

The exact number of these languages—estimated at about eighty by some—and their interrelationships are still subjects of continuing research, particularly as to whether Visayan is a single language or a group of languages. The Bureau of Public Schools, however, re-grouping some of these and leaving others out, recognizes only eight. Assuming a rounded population figure of 30 million, Noss estimates that some 95 per cent of this population—about 28.5 million—are native speakers of the main recognized categories of Western Malayo-Polynesian languages.

The remaining 2.5 million of the population are thought to be native

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[1] The 1960 Census revealed that a substantially larger number claimed Chinese citizenship than Chinese as a mother tongue, e.g., in Manila 69,337 as against 61,599.

[2] This includes most of the languages spoken in Indonesia and about 36 per cent of those spoken in Malaysia.

TABLE 1. Population projections, 1960-80[1] (thousands)

Age group	1960		1965		1970		1975		1980	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Total	27 425	13 592	32 357	16 037	38 504	19 083	46 194	22 893	56 093	27 781
School age:										
7-10	3 170	1 558	3 649	1 786	4 414	2 175	5 378	2 655	6 582	3 246
11-12	1 412	695	1 688	828	1 920	939	2 396	1 185	2 895	1 428
13-16	2 498	1 229	3 023	1 485	3 507	1 717	4 183	2 058	5 140	2 539
17-20[2]	2 143	1 063	2 564	1 263	3 099	1 522	3 555	1 740	4 349	2 145

[1] 1960 actual.

[2] In relation to a first degree in arts, science, teacher training and first four years of engineering and other professional courses.

speakers of Chinese (mainly Hokkien and Cantonese), Indo-European languages (including Spanish and English) and aboriginal languages.

Since Pilipino, adopted as the official national language in June 1940, is essentially derived from Tagalog, little more than one-fifth of the population are native speakers of the national language, and unlike Malay/Indonesian, it has never served as a lingua franca even for trade purposes. On the contrary, the Visayan group of languages (Cebuano, Hiligayon and Waray) has over 40 per cent of the population as its native speakers and English, in education, commerce, official communications and foreign contacts, serves as the practical lingua franca, although it is estimated that no more than one-third of the population (about 10 million) is able to use it with any fluency. Under these circumstances, Noss feels that, even with the considerable efforts now being exerted, it will be a long time before Pilipino could reach the major position that Indonesian and Malay have in Indonesia and Malaysia (also see pp. 558-60).

The demographic development of the country between 1960 and 1980, with details on school age-groups, has, according to conservative assumptions, been computed as shown in Table 1 by the Philippine Bureau of Census and Statistics and the Bureau of Public Schools for the URAT report on the Philippines.

THE SOCIO-ECONOMIC SITUATION

Most of what is today known as the Philippines was from the eighth to the twelfth century a part of the Buddhist empire of Sri-Vishaya, and, thereafter was annexed by the Madjapahit empire based in east Java, thus, like other countries of South-East Asia, coming under strong Indian/Javanese cultural influences.[1] In this way close links were also developed with Indonesia and Malaysia, which to this day manifest themselves in an ambivalent fashion on the political as well as the cultural scene.

With the decline of Madjapahit towards the end of the fifteenth century, many of its Filipino tributory states broke away to join the rising Muslim empire centred at Malacca. When in the wake of Ferdinand Magellan's visit in 1519—which opened up this part of the east to the Western world—the Spanish conquest of the Philippines began and was completed before the end of the sixteenth century, the Muslim sultanates of Sulu and Mindanao held on to their independence; and in frequent conflicts that arose between them and the Spanish power during the next 300 years, Filipinos as well as Spaniards were involved in raids by the Muslims of these islands, who came to be known as Moros. Today, despite conscious efforts to establish good relations between Christians and Moros—of which currently the establishment and operation of the University of Mindanao is a significant example—some basic mutual fears and suspicions still remain to be overcome.

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[1] Also see Srivijaya and Modjopait in the Indonesian profile.

The Spanish occupation, which was at first directed through Mexico, never involved the presence of more than a few thousand Spaniards in the Philippines, but the religious, cultural and linguistic impact was nevertheless both widespread and intensive. By the time the Americans came, Spanish had become the language of the élite though not of the people; some 90 per cent of the people were devout Catholics, and Spanish culture had coloured everything from church and education to dress and dance.

The Philippines fought for and finally gained its independence in January 1899, after gradually securing control over larger and larger parts of the country under the leadership of Emilio Aguinaldo (one of the great Filipinos with Chinese ancestry), with American assistance proffered on account of the Spanish-American war started in Latin America in April 1898. Subsequently, the Americans decided to hold the country 'in trust' and after a brief but sometimes bitter struggle, involving more than 70,000 American soldiers, they gained full control by 1901. Self-government was granted in 1908, the status of a Commonwealth in 1934—through the Independence Act adopted by the Philippine Legislature on 8 February 1935 which had practically complete internal powers—and full independence would undoubtedly have been achieved long before 4 July 1946 had it not been for the Second World War, in which the Philippines almost whole-heartedly supported the United States.

The Filipinos today thus present more of an Asian-Western admixture than perhaps any other country in the world; but despite strong socio-economic links with America, the country is consistently strengthening its Asian traditions and pre-Western relations, while culturally, if not politically, showing an ambivalent attitude to things American. Nevertheless, it is perhaps largely an American heritage that education is so highly prized and a widespread, effective means of social mobility—though it has also been pointed out that 'in many cases the mobility aspirations and determination to get ahead which are revealed in the efforts to get an education may have been ultimately more important than the education received'.[1] A study of Philippine values,[2] emphasizing the basic importance given to family, tradition, authority and regard for the feelings of others, also stresses that 'parents must strive, even at great cost to themselves, to give their children an education.... One must study and work hard to improve one's economic situation.... Social recognition is a major aim in one's going to school and going to work.... A diploma is a means to prestige.'

While in 1959 it was estimated that no more than about 62 per cent[3] of

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1. John J. Carroll, 'Filipino Entrepreneurship in Manufacturing', *Philippine Studies—A Quarterly*, Vol. 10, No. 1, January 1962, p. 116.
2. Jaime Bulatao, 'Philippine Values, I: The Manileño's Mainsprings', ibid., pp. 52-73.
3. In 1952 the estimate was perhaps exaggerated at 70 per cent in *The Rural Philippines*,

the population was engaged in agriculture and the *Five-Year Integrated Socio-Economic Program for the Philippines, 1962/63-1966/67* rather optimistically hoped to reduce this percentage to 48.5 to provide more manpower for expanding industry as well as for trades and services, about three-fourths of the population still lives in barrios—of which there are over 18,000 grouped into more than 1,000 municipalities located in 56 provinces—and the country's economy is basically agricultural. Urbanization between 1918 and 1957 has led to a percentage increase of city and town dwellers from 27.2 per cent to no more than 35.5 per cent[1]—which includes inhabitants of *poblanciones* (municipal district centres) that in many cases are quite small, about half of them having a population of less than 3,000 people.

One of the biggest problems facing the economic development of the country is that agricultural productivity is low, a situation perpetuated by widespread absentee landlordism, inadequate agricultural credit facilities for the peasant, and tenant farming by about 50 per cent of the agricultural population. Land ownership is heavily concentrated—about five landowners on average owning more than 30 per cent of the total farming area—while at the same time, farms are generally small. Thus, whereas plantation agriculture plays a significant role in the production of export crops, for the economy as a whole small-scale subsistence farming is the general rule and drastic improvement must be made if higher productivity and average standards of living are to be achieved. As it is, regulations designed to improve the lot of the tenant farmer have not been effectively implemented and there appears, even today, to be little exaggeration in the 1946 statement that the 'Philippine economy is rooted in the feudal economy of sixteenth-century Spain, which the conquistadores implanted on Philippine soil. . . . In spite of large schemes for nationalizing land, little was done in effect to ameliorate conditions among the feudal peasantry or to replace the backward agricultural economy.'[2]

The Chinese too, while they were practically legislated out of the retail trade, though probably retaining control of about 13 per cent of the shops through a Filipino figurehead system, have played a dominating, though neither an extortionate nor a monopolist, role in the life of rural communities. The Filipino peasant has generally regarded the Chinese merchant, with his *tienda* corner store and high-interest money lending business, as his oppressor and the author of his misfortunes, but he 'is yet, consciously or subcon-

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by Generoso F. Rivera and Robert T. McMillan. (*A Cooperative Project of the Philippine Council for United States Aid and the United States Mutual Security Agency*, p. 19. Manila, Office of Information, Mutual Security Agency, 1952.)

[1] *Population Growth and Manpower in the Philippines*, op. cit., p. 11.

[2] (a) Hernando J. Abaya, *Betrayal in the Philippines*, p. 206 (New York, 1946). (b) Recently, though, the Agricultural Secretary has claimed that land titles to the landless were being given out at the rate of 20,000 per day and that 800,000 titles would be in the hands of new landowners by the time of the 1965 elections.

sciously aware that they provide a distribution service which he himself could not reproduce either in his generation or the next, and, while he resents the Chinese proprietor of the *tienda*, he would think himself very lucky to obtain him as a husband for his prettiest daughter, for with him as *pariente* the whole family would never be in want. He knows him to be frugal and economical where he himself is shiftless'.[1]

As in other South-East Asian countries, the average Filipiño is temperamentally both easy-going and cheerful: the peasant goes to work at dawn but usually rests between 10 in the morning to 2-3 in the afternoon, before returning to work until sunset; and even in urban areas the midday siesta is more the rule than the exception.

Women generally enjoy almost full equality with men: in the home they share responsibility with the male head of the family and, indeed, control the purse strings. In social and political life as well as education—where at the primary and secondary level women teachers far outnumber men—women play a significant role: inheritance is bilateral and equal, and since 1937 women have had full voting rights.

Although, with its extremes of wealth and poverty and its emphasis on free enterprise, the Philippines can scarcely be called a welfare state, it nevertheless has an impressive structure of welfare legislation which extends beyond the examples given to: minimum wage levels;[2] limitation of hours of work; minimum safeguards for labour, including the Industrial Peace Act (Republic Act No. 875 of June 1953), subsequently called the 'Magna Carta of Labour', which has been drafted in the spirit of the Taft-Hartley Act and substitutes collective bargaining for compulsory arbitration.

Machinery of government and planning

According to the Philippine constitution adopted in May 1935 and amended in 1940 and 1946, the President and Vice-President are elected for four years and are eligible for a second term. The President has wide, though controlled, powers similar to those of the President of the United States, and is assisted by eleven Secretaries of State—in charge of Departments of Education, Health, Finance, Labour, Commerce and Industry, Agriculture and Natural Resources, Foreign Affairs, Justice, National Defence, Public Works and Communications, General Services—and by ten other officers of cabinet rank: Chairman of the National Economic Council; Administrator of Economic Co-ordination; Director-General of the Planning and Implementation

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[1] Victor Purcell, *The Chinese in Southeast Asia*, p. 551 (London, Oxford University Press, 1965, second edition).

[2] In principle, for agricultural labour 2.50 pesos per day and in towns 4 pesos per day; but the so-called 'Moreno rider' written into the Public Works Act for 1955/56, without executive approval, added that wages on public works projects 'shall not be less than prescribed by law for agricultural labourers', i.e., 2.50 pesos per day.

Agency; the Commissioners for National Integration, the Civil Service, Budget, and for Social Welfare; Chairman of the National Science Development Board (see p. 594);[1] the Executive and the Press Secretaries.

The supreme governing body is the Congress, which comprises a 24-member Senate and a 104-member House of Representatives.

Economic policy and planning is evolved by a complex system of institutions which do not always interact constructively and, despite a special Implementation Agency, the effectiveness of plans is not only limited by the weakness of the public sector of the economy, but also obstructed by inadequate taxation and tax collection, by large-scale smuggling which has, for instance, almost killed the Philippine textile industry, and by rampant corruption.

Principally responsible for economic policy formulation under the authority of Congress are the National Economic Council, the Monetary Board of the Central Bank of the Philippines, the Budget Commission and, not least the Cabinet, with its interplay of personalities, which functions like a business board of directors. The Council has held responsibility for the preparation of economic plans; but its programme for 1959-62 remained good on paper only, since it did not receive presidential approval. Even its subsequent programme for 1962/63 to 1966/67 has not been formally adopted by Congress. It has indeed been suggested that the Council 'is isolated from most major aspects of policy making',[2] to which, however, an important exception is its Office of Foreign Aid Co-ordination, which plans and supervises the use of United States' aid and counterpart Philippine appropriations, together with the United States Economic Aid Agency. The strength of the Monetary Board is derived both from the wide authority vested in it by Congress and from the practical circumstances that enhance the consequences of monetary and commercial policies. The Budget Commission has broad powers to 'assemble, correlate, revise, reduce or increase the requests for appropriations of the different departments and agencies of the government'.[3] And as Professor Golay[4] points out, 'because of the weak congressional and executive commitment to economic planning, the fiscal planning of government receipts and expenditures by the Budget Commission has become an increasingly important guide to public policy'.[5]

The Five-Year Programme itself, deploring the lack of co-ordination between government agencies, urging greater advisory powers for a National

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1. But not, it may be noted in passing, the Chairman of the Board of National Education (see p. 574).
2. Frank H. Golay, *The Philippines: Public Policy and National Economic Development*, p. 21 (Ithaca, Cornell University Press, 1961).
3. Republic Act No. 992 of 4 June 1954.
4. *The Philippines: Public Policy and National Economic Development*, op. cit., p. 20.
5. In his first post-election press conference, President Ferdinand Marcos also proposed to establish an advisory economic council composed of eminent businessmen and other personalities in the private sector.

Economic Council composed of full-time experts and specialists, and the creation of a foreign economic policy council, headed by the Secretary of Foreign Affairs, observed: 'The National Economic Council was presumably charged by law with the obligation of preparing the economic programme of the government. The Monetary Board of the Central Bank, however, prepared its policies on credit and foreign exchange quite independently. The Budget Commission prepared a fiscal programme which did not necessarily reflect priorities consistent with those of the National Economic Council's, the government financial institutions pursued their own lending programmes and the regular departments of the executive branch carried on their day-to-day business in accordance with guiding policies and objectives not necessarily consistent with those established by other agencies.... As a result the government becomes a source of confusion and irritation rather than a source of stability and leadership.'[1]

For action at the local level two broad Regional Development Authorities have been set up for Mindanao and the Cagayan valley (the creation of a metropolitan development authority has also been recommended), and the plan has proposed widening community development planning by provincial and municipal development councils to include economic planning. For this purpose, it recommended that central assistance be given in the form of technicians, expert advice, training for technical staff and development loans to local governments and their executives. However, in the absence of congressional enthusiasm for community development programmes, first proposed in 1955, financial support for the programme, conducted under the authority of a Presidential Assistant on Community Development in the Office of the President, comes largely from United States' aid, of which in the late 1950's about 10 per cent was specifically allocated for this purpose.

The economy and over-all development plans

The 1966 *Far Eastern Economic Review* reported that 'the state of the Philippine economy was not easy to describe in election year 1965. It was on the verge of collapse—according to critics of the administration, but it continued to be basically stable and healthy, according to administration economic experts and policy-makers'.[2]

On the one hand, the peso stabilized itself, after decontrol, at P3.90 = $1; significant growth in production was achieved, and over the past ten years the non-agricultural sector of the economy has come to account for 67 per cent of the gross national product as against 57 per cent in 1954, including a manufacturing and mining contribution of 18 per cent as against the previous 14 per cent level. On the other hand, food production has failed to keep pace with a rapidly increasing population and improvements in dietary habits; industry has remained largely dependent on imported raw materials for processing, packaging and assembly; the over-all balance of payments situation and levels of foreign exchange reserves have both deteriorated,[1] and there was a dearth of long-term development capital, partly due to a restriction of credit in order to control rising prices.

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[1] *Five-Year Integrated Socio-Economic Program for the Philippines, 1962/63-1966/67*, op. cit., p. 69.

[2] *Far Eastern Economic Review, 1966, Year Book*, p. 273 (Hong Kong, 1965).

According to the Central Bank's Report for 1964, agricultural production increased at the rate of 5.6[2] per cent as against 3.9 per cent in 1963; mining output by 6.3 per cent, as compared with 1.5 per cent, and manufacturing production by a record 9.9 per cent, as against 4.4 per cent. It also points out that unemployment among the labour force was reduced to 6.4 per cent from the previous year's level of 7.8 per cent. But in real terms, the 1964 GNP growth has been estimated at only 3.8 per cent, as against a current market prices rate of about 9 per cent. Similarly, whereas at current prices *per capita* GNP increased by over 16 per cent between 1962 and 1964, in terms of 1955 prices it rose by only 2.2 per cent to 413 pesos and *per capita* private consumption expenditure over the same period actually declined.

In the agricultural sector, Filipinos frequently lament the fact that in a country where a major proportion of acreage is devoted to rice, and land and climate are ideally suited to the growing of rice—and where the renowned International Rice Institute has been established[3]—productivity is low (about a quarter that of Japan) and rice has to be imported.[4] It is possible that together with more effective extension work, promoting better methods of cultivation, land reform and improved market incentives may radically change this situation in the near future. As it is, appreciable gains have been achieved in the outputs of such food items as fish, peanuts, fruits and nuts and of the major export items of lumber and sugar.[5]

There has been a slight decline in the output of copra and coconut oil, but this has been more than made up by sharp increases in prices to a record level in the first half of 1965, so that, accounting for about 29 per cent of export earnings, it has replaced sugar as the chief dollar earner. On the other hand, increases in the output of sugar have been almost nullified by repeated setbacks in price levels between 1963 and 1965. The tapering-off of American quotas for Philippine exports and increasing price competition for the sale of raw materials in the international market present a serious problem for the future of most of the current major exports of the Philippines, with the possible exception of such minerals as copper and mercury.

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[1] Though by 1965 the foreign exchange reserves began to pick up lost ground.

[2] *Central Bank of the Philippines, Sixteenth Annual Report, 1964*, p. 4.

[3] See p. 596.

[4] In 1963 the government spent about $27 million on importing rice; and in 1964 typhoon damage was also reflected in a drop of 3.1 per cent in rice output.

[5] It may also be noted that the Philippines is one of a few Asian countries where *per capita* agricultural output has substantially increased above the pre-war level: in terms of food crops alone in 1957 12 per cent above the pre-war level; but between then and 1964 there has been a decline of about 4.6 per cent.

Although Philippine industry is still largely composed of small- and medium-scale industries—and a major proportion of these are concentrated in the Manila and surrounding Luzon area (about 70 per cent of all industries), giving the casual visitor an exaggerated impression of industrialization throughout the country as a whole—the country is aiming at stepping up its industrial development to stabilize the economy, reduce unemployment and raise standards of living. Between 1955 and 1964, non-agricultural employment showed a percentage increase of 32.4 per cent, including 23.3 per cent for manufacturing, 65 per cent for construction, 35.9 for commerce and 43.5 per cent for transport and communications. In the year 1964 alone, an impressive increase of 18 per cent over the previous year's total value of manufacturing production by 1,128 reporting firms was achieved. The largest gains were in leather products, transport equipment, furniture and fixtures, tobacco products, electrical machinery, apparatus, appliances and supplies. On the other hand, the textile industry, encountering major difficulties, primarily due to cheap smuggled textile competition, has been working much below capacity, and family-oriented preferences for investment in property, rather than in productive enterprises, restrict the development of such complex industrial outputs as chemicals, fertilizers, fuels, building materials, engine and vehicle components, machine tools or metallurgical products, including items with a significant industrial export potential.

Nevertheless, in the basic field of iron and steel, several new large plants have been taking shape, mainly through government initiative. Plans have been prepared for two steel mills in Mindanao and Krupps of Germany have contracted to assist in the establishment of a third steel mill in Rizal. When these plants begin to work, they will help to reduce the serious drain on foreign exchange involved in the import of semi-finished steel products—amounting to $92 million in 1963.

While copper remains the country's leading metal export, an all-time record in both non-metallic and metallic mining has been forecast for 1965 as a result of the incentives of high prices for copper and mercury, a big upsurge in the output of cement—for which serious shortages had been felt in 1964—and the expanded production of copper and gold.

Electric power requirements have been rising continuously, owing to expanding domestic as well as industrial needs, and power companies have been energetically building new units to keep up with the demand, including government plans for three major hydroelectric plants, which together with private enterprise will nearly double total electric capacity to over 1.4 million kW by 1972.

Although the production of transport equipment leaped ahead by a 39 per cent increase in 1964 and 66 per cent in 1965, highway construction and road improvement has lagged behind the output of motor vehicles. More recently, however, the Department of Public Works has announced a programme to complete, in the near future, the Pan Philippine Highway from the northern tip of Luzon to the southern tip of Mindanao, spanning intervening waters by a combination of ferry services and bridges. Air transport has been rapidly expanding and becoming more popular, so that there were at least four airlines serving the domestic routes in 1965. On the other hand, the Manila Railroad has been increasingly plagued by a combination of inefficiency and strikes; and inter-island shipping is greatly in need of modernization and improved facilities, for which a loan of $10 million was obtained in 1964 from the Federal Republic of Germany.

In addition to government-supported loan schemes for the development of industry (including the Government Service Insurance System and the Social Security System, as well as the Development Bank of the Philippines), the most effective industrialization policy has been that of subsidizing 'new and necessary industries' in the form of (a) tax remission, (b) high levels of protection through import controls and tariffs[1] and (c) until the 1962 decontrol of the peso, preferential foreign exchange allocation.

To attract foreign capital, the administration in 1964 proposed an investment law providing guarantees against non-commercial risks, tax preferences to channel investments into desirable industrial sectors, and greater advantages for firms including Filipino capital. But this bill was not passed by Congress and the question of foreign investment remains a tangled issue.[2]

Although, since 1946, the Philippines has produced a succession of economic plans, as well as planning institutions—and these have laid growing emphasis on industrial development, including public investment in power and transportation facilities, while relying on private initiative for the expansion and operation of enterprises—the plans 'cannot be considered as more than organized statements of minimum Philippine aspirations for accelerated economic growth and industrialization'.[3] Reasons given for this situation are the weakness of the public sector which therefore exercises little guiding influence on the total economy, incentives reflecting expediency rather than the implementation of planned policy; lack of Congressional interest in planning; resistance from vested interest in a non-authoritarian urban and semi-feudal rural environment; discrediting experiences with public commercial and manufacturing enterprises and agricultural marketing corporations due to inefficiency, nepotism and corruption;[4] public indifference to

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1. This, however, has been partly nullified by large-scale smuggling.
2. In 1964 the National Economic Council refused two United States firms permission to enter the cement business on the grounds that it was a pioneer Filipino effort reserved for Filipino initiative.
3. *The Philippines: Public Policy and National Economic Development*, op. cit., p. 372.
4. *Economic Growth in the Philippines, a Preliminary Report Prepared by the Staff of IBRD*, January 1962. The IBRD has been one of the few, if not the only agency, to stress that efficiency is not likely to improve nor corruption be eliminated, so long as executives and administrators continue to receive very low salaries in comparison

economic planning and suspicions of government interference; the political isolation of the National Economic Council and the dominance of the Monetary Board and lastly, but far from least, the unwillingness of the government to raise revenues by taxes, thus limiting its capacity to invest in the development of productive resources.

In view of these factors, only the basic targets of the 1962/63 to 1966/67 plan are outlined here. The plan aims at an average GDP increase of 6 per cent per annum, with gross domestic investments rising from 13 per cent in 1963 to 16 per cent in 1967,[1] and providing for: self-sufficiency in food; 330,000 to 360,000 new jobs each year, full or partial employment for 94.5 per cent of a labour force of about 12.3 million, with increasing absorption in the industrial sector; improvement of the general welfare of the masses and the development of regional resources, especially in underdeveloped but potentially rich Mindanao. The gross domestic investment is intended to generate new capital formation amounting to P12,700 million[2] over the five-year period, of which the government share would be about P2,810 million, to be largely concentrated on transport, irrigation, power development and water supply. Social services are allocated P1,141.6 million, including P656.6 million for public education, but this comprises a capital outlay of only P328 million, including P237 million for education, and it is not clear whence the rest of the expenditure is to be met because the total proposed investment in physical infrastructure alone amounts to about P2,400 million.

It is anticipated that net inflow of new foreign capital will reach $860 million in the five-year period; that export earnings would average $740 million annually; that imports of producer and consumer goods would grow by 45 per cent; that domestic production would increase by about 51 per cent towards the middle of 1967;[3] and that private consumption expenditure would increase by 45.2 per cent.[4]

The plan proposed to introduce decontrol of the peso while compensating for this through increased protection for home industries, including higher and new tariffs; and these recommendations have so far been carried out with apparent success. The sectoral investments suggested by the plan also emphasize the need for government provision of an adequate infrastructure and the promotion, through economic leadership by government, of basic

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to those current in the business world. Even cabinet ministers in 1962 had an upper limit of 12,000 pesos per year as against 50,000 to 100,000 pesos per year drawn by senior members in private business.

[1] The IBRD had emphasized the need for a minimum investment of 17.5 per cent of GDP between 1962 and 1966 (*Economic Growth in the Philippines, a Preliminary Report Prepared by the Staff of IBRD*, op. cit.). Actual performance raised the percentage from about 12.5 per cent in 1962 to 16.4 per cent in 1964.

[2] Including net addition to inventories of P604 million.

[3] This would involve an average annual increase of well over 10 per cent!

[4] It has been noted that in fact there has, in real terms, been a decline between 1962 and 1964 (see p. 564).

industries which will supply existing light manufacturers with raw materials that are presently imported, including basic metals and metal products, chemicals, pulp and paper, textiles. It is, however, added that: 'We believe that economic development is principally a task of private enterprise and not of government. The government's role is to create a favourable environment that will produce the inducements necessary, in terms of suitable policies and measures needed to foster economic growth and stability. It must be in a position to devise new and effective methods, democratic in character and spirit, to induce the private sector—properly called the dynamic sector—to risk idle capital for development purposes.'[1]

Deploring the position of inadequate rice production and aiming at a general increase in agricultural productivity, the plan considers that the government must provide improved irrigation and water control; continue subsidies for fertilizers and seeds; expand research programmes, especially for high-yielding and disease-resistant varieties of agricultural crops; establish liberal credit facilities, and improve marketing and transportation networks. But the plan gives no special attention to the IBRD[2] recommendations that a threefold increase in fertilizer use is the key to increased production, that with substantial plant expansion domestic industry could meet the bulk of the requirement, and that new crops of rubber, arabica coffee and citrus could be introduced with advantage.

In education, too, while stressing the quantitative problem of the total student population increasing at an estimated annual rate of about 600,000, the plan makes no effort to relate educational development to its economic targets. In contrast, the IBRD Mission was 'convinced that the Philippine educational system is not focused on the needs of a rapidly growing economy. Education is regarded more as a constitutional right than an instrument of economic progress. The accent is on social consumption rather than purposeful investment'.[3] It uncompromisingly added that public education would contribute to economic growth only if importance is attached to problems of quality and if an attempt is made to anticipate future demands for vocational and professional skills.

THE EDUCATIONAL SYSTEM

The educational pattern current in 1964 comprised six years of elementary school, including four years primary and two intermediate; four years of secondary, only in part organized on a scheme which devoted the first two years to general education and the next two to some specialization in an academic or vocational direction; followed by a minimum of four years for a first degree in arts or science. Associate diplomas are available after two years and other special diplomas in one to three years, but medicine requires a minimum of eight years,[1] engineering five and law four post-graduate years after a first degree in arts or science.

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[1] (a) *Five-Year Integrated Socio-Economic Program for the Philippines, 1962/63-1966/67*, op. cit. (b) This presents an interesting contrast to the current Burmese emphasis on all-out nationalization (see profile on Burma).

[2] *Economic Growth in the Philippines*, op. cit.

[3] *Economic Growth in the Philippines*, op. cit. But surely education is even more than a constitutional right—it is a basic human right. The great problem, as the Director's Report (Volume I) of this study endeavours to show, is to reconcile the social and economic values of education, not to consider them as competing factors in which either can be additionally weighted only at the expense of the other.

Before 1940, when the Commonwealth Act No. 586 was passed, elementary education had extended over seven years. In reducing this to six years the Act, in view of the shortage of facilities and rapid expansion of enrolments, also introduced morning and afternoon sessions of two-and-a-half hours each for separate groups of primary grade (1-4) pupils and required each intermediate (grades 5-6) teacher to handle an entire class throughout the day, teaching all the required subjects. Subsequently concern over falling standards grew and, in 1953, Educational Act No. 896 provided for the restoration of grade 7 and the elimination of both double sessions in primary schools and single-teacher classes at the intermediate level. But the law was not implemented, and in 1957 the *Revised Philippine Educational Program*, issued through the Department of Education Order No. 1, retained the six-year elementary programme, prescribing the conversion 'to the full-day session as soon as facilities will permit' and the reduction of class sizes 'from 60 to a maximum of 40 pupils in each class whenever possible'. Meanwhile, various proposals have been made to increase the period of secondary schooling (also see pp. 561-5) and in 1964 a committee set up by the Board of National Education to study proposals to improve the educational system recommended that it be increased from four to five years. However, by 1965 the Board had still not taken any action.

The Philippine Constitution, in Article XIV, Section 5, states that: 'All educational institutions shall be under the supervision of and subject to regulation by the State. The government shall establish and maintain a complete and adequate system of public education, and shall provide at least free public primary instruction, and citizenship training to adult citizens. All schools aim to develop moral character, personal discipline, civic conscience, and vocational efficiency, and to teach the duties of citizenship. Optional religious instruction shall be maintained in the public schools as now authorized by law. Universities established by the State shall enjoy academic freedom. The State shall create scholarships in arts, science and letters for especially gifted citizens.'

To assist in the implementation of these objectives, which is the task of the Department of Education headed by a Secretary of Education, there is a sixteen-member Board of National Education,[2] of which the Secretary is chairman, to: '... formulate, implement, and enforce general educational objectives and policies ... (as) the exclusive agency of the government for the implementation of educational policies and the direction of the educational interests of the nation, subject only to the constitutional authority of the President of the Republic over executive departments, bureaux and offices'.[1] The Board's membership is derived from a wide cross-section of representatives from governmental agencies, educators and experienced laymen, including the chairmen of the Committees on Education of the House of Representatives and of the Senate; the directors of public and of private schools; the president of the University of the Philippines; the chairman of the Philippine Unesco Commission; and eight others appointed by the President of the Philippines, with the consent of the Commission on Appointments. These are selected from organizations representing labour, industry and management, agriculture, the National Catholic Educational Association, Muslim or other cultural minorities, the Philippine Association of Colleges and Universities (private, non-sectarian), and the teaching profession.

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[1] Three pre-medical, four medical, one internship. It is more usual for a full four years of pre-medical studies to be required (see p. 592).

[2] Replacing the former National Council of Education established in 1936.

While all public and private schools are supervised by the Education Department, the two State universities and other chartered colleges are described as organs of the State which are directly responsible only to Congress. Furthermore Congress also directly controls the public school budget through specific appropriations. All basic educational policy formation and programming, even curricula patterns, specifying mandatory units of study in various main subject areas, are subject to detailed legislative action.

The Department of Education itself comprises three bureaux: Public Schools, Vocational Education (a new creation in July 1963) and Private Schools. The first is in charge of general elementary and secondary education and of eight teacher-training colleges, which are post-secondary; the second[2] of public vocational and technical education at both secondary and post-secondary levels; the third supervises, inspects and regulates all private schools, colleges and universities. Each bureau is headed by a director, in charge of a number of administrative and promotional divisions or sections (e.g., in the Bureau of Public Schools, a Research, Evaluation, and Guidance Division and a Teacher Education Section), and each now includes planning and programming committees. As a further measure for the promotion of co-ordinated planning and implementation, two more bodies have been set up as part of the Department of Education: a Programming and Co-ordination Unit and an *ad hoc* Committee on Planning. The first, composed of specialists in various fields, e.g., elementary and secondary education, private schools, home economics, health, adult and vocational education, is concerned with the formulation of long-range plans and initiates action on matters related to particular fields of specialization covered by the membership of the unit. The second is preparing a long-range plan for the public schools that would provide for quantitative and qualitative educational developments in the perspective of the Karachi Plan. A Five-Year Educational Programme drawn up by this committee formed the basis for a discussion on educational planning at the 1965 Annual Convention of the Philippine Association of School Superintendents, and according to the 1964/65 report on educational developments by the Director of Public Schools,[1] 'for the first time educational planning for economic development is given the attention and importance that it deserves'. On the other hand, another official progress report[2] fears that among 'difficulties foreseen in the attainment of educational plans' there is a 'lack of sympathy and appreciation by Congress of the importance of educational planning'. Other serious obstacles anticipated include: 'Lack of a permanent administrative machinery in the Office of the Secretary, Department of Education . . . of trained personnel, particularly a statistician to collect and summarize data[3]. . . of a research, evaluation and documentation centre in the Office of the Secretary[4]. . . of standard evaluation procedure for supervising and measuring progress . . . of co-operation of private agencies and business sectors in the gathering of data and in extending services and facilities to vocational students who are "on the job training" . . . of a National Planning Office adequately staffed to represent all government sectors, particularly a trained educational planner . . . of a permanent source of funds to finance educational plans.'[5]

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[1] 1954 Republic Act No. 1124.

[2] In the case of schools that provide both general and vocational courses this must raise some nice questions as to areas of competence.

At the local level, little influence is exercised by local bodies on elementary education—largely limited to the thirty-eight chartered cities which constitute separate educational divisions; it is supervised by centrally appointed divisional or provincial superintendents and their assistants, both in special fields and at the district level. Public general secondary education, financed through fees and from local resources, is controlled through centrally appointed principals within a framework of national and divisional supervisors. The heads of secondary vocational schools are themselves appointed as superintendents.

The elementary school superintendents in sixty-two provinces and thirty-eight chartered cities are generally appointed with the approval of the

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1. Vitaliano Bernardino, Director of Public Schools, *Report on Educational Developments in 1964/65 presented at the twenty-eighth session of the International Conference on Public Education, Geneva, July 1965*, pp. 1-2 (Manila, Department of Education, Bureau of Public Schools, mimeo.).
2. *Progress Report. Educational Planning in the Philippines 1962-65*, p. 20 (Manila, Department of Education, November 1965, mimeo.).
3. This seems somewhat anomalous in view of the vast graduate output of higher education.
4. Why the Divisions of Research, Evaluation and Guidance located in the Bureaux of Public Schools and of Private Schools are not considered adequate for the purpose is not explained.
5. Apart from annual uncertainties of congressional appropriations, there is the second hurdle of actual disbursements which are apparently often curtailed or delayed.

TABLE 2. Public and private school enrolment by level, 1962/63

Level	Public	Private	Total	Public as percentage of total	
Primary (1-4)	3 601 448	157 670	3 759 118	96	95
Intermediate (5-6)[2]	999 225[1]	59 921	1 059 146	94	
Secondary (7-10)[3]	234 351	423 780	658 131	36	40
Secondary technical/vocational	67 271	34 390[4]	101 661	66	
TOTAL	4 902 295	675 761	5 578 056	88	

Source: *School Statistics, 1962/63*, compiled by the technical staff, Board of National Education, Manila. For private enrolments, somewhat higher figures (elementary 222,621 and secondary, including vocational, 527,002) are given for 1962/63 in *Private School Statistics 1963/64*, Table XII (Manila, Department of Education, Bureau of Private Schools).

1. Includes 211 pupils following vocational courses under the Bureau of Vocational Education.
2. Private enrolments include some 4,000 pupils in grade 7 and another 125 in grade 8.
3. All enrolments include some vocationally biased secondary education, though this is more frequent in the public schools.
4. Includes some 1,500 students in upper grades 11-12.

Secretary of Education on the recommendation of the Director of Public Schools from a promotion list established by the civil service system. The superintendent, in accordance with centrally issued rules and regulations, recommends appointments of principals, teachers and other school employees in his province or division; has authority to open, extend and close schools, to assign employees in the area within limits of approved policy, to rate them on efficiency, to disburse approved funds and arrange for the housing and equipment of new classes, and in general to promote the welfare of public education in his province or division.

While it is felt that there is need to expand the system of inspection, especially through the appointment of more elementary school principals and district supervisors,[1]—it has been proposed to establish the supervisor/teacher ratio at 1:100—the major emphasis in recent years has been on improving the quality of inspection and supervision through in-service courses, workshops, work conferences and seminars. Apart from in-service training provided by the University of the Philippines and the Philippine Normal College, between 1963 and 1965 regional in-service education centres have been established in twenty strategic locations throughout the country, and these provide

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[1] See *Brief Report on Educational Developments in 1963/64 presented at the twenty-seventh International Conference on Public Education, Geneva, July 1964* (Manila, Department of Education, Bureau of Public Schools, mimeo.).

TABLE 3. Increases in enrolments by level, 1952/53 to 1962/63, public[1] and private

Enrolments and indices	Level (grades)		
	Elementary (1-6)[2]	Secondary (7-10)[3]	Higher[4]
Enrolment 1952/53:			
Public	3 796 000	216 875	22 492
Private	134 000	396 895	207 731
Total	3 930 000	613 770	230 223
Enrolment 1962/63:			
Public	4 600 673	301 622	51 970
Private	217 591	458 170	320 439
Total	4 818 264	759 792	372 409
Indices for 1962/63 (1952/53 = 100)			
Public	121	139	231
Private	162	115	154
Total	123	124	162

1. Public enrolments include enrolments in State universities and chartered State colleges.
2. Rounded to nearest 1,000.
3. Including vocational.
4. Not including enrolments in short-term vocational courses in private colleges and universities, numbering about 51,000 in 1962/63, as these are not considered to be of full collegiate level.

training in supervision and administration as well as in improvement of teaching skills.

In 1962/63, as shown in Table 2, private schools accounted for about 60 per cent of the total secondary enrolment as against only 5 per cent of the elementary, save in vocational secondary education where 66 per cent were enrolled in public schools. At the elementary level there were 31,676 public as against only 1,342 private schools, but at the secondary level no more than 265 as against 1,397.[1] Kindergarten and preparatory provision is almost entirely in private hands: 252 schools with an enrolment of over 25,000 as compared to 12 public schools with an enrolment of less than 1,000 children.

Following a very rapid expansion in both elementary and secondary enrolments between 1940/41 and 1950/51, when the first was about doubled and the second nearly trebled, between 1952/53 and 1962/63 (Table 3) growth has been more gradual, and most marked at the level of higher education.

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[1] Not including 598 special vocational private schools providing short courses.

Private enrolments have grown a little faster at the elementary level, public enrolments at both secondary and higher levels. Indeed, at the higher level, the public share has advanced so rapidly that from an approximate ratio to the private of 1:10 in 1952/53, it had risen to 1:6 in 1962/63.

The main medium of instruction, with the exception of the first two years of primary school, continues to be English.[1] In 1957, before which English was the primary medium of instruction throughout formal education, *The Revised Philippine Educational Program*[2] stated:

'The Board (of National Education) adopts as a policy the use of the native language as the medium of instruction in grades I and II in all public and private schools and urges the school authorities to take practicable steps toward its implementation.

'The Filipino[3] language shall be introduced as a subject in grade I and given increasing emphasis in the higher grades.

'In the first and second grades of the elementary school English shall be introduced informally as a subject. Beginning grade III English shall be used as medium of instruction with the vernacular as auxiliary medium in the primary and with the Filipino language as an auxiliary medium in the intermediate and high schools.'

In addition, Spanish is encouraged as a second foreign language in secondary school: in higher education it is compulsory, a minimum of 12 semester units[4] being required for all courses, a minimum of 24 in law, commerce, liberal arts, foreign service and education.

The difficulties of this system are recognized, and researches are being carried out in search of solutions. The Swanson Report on Philippine Public Schools[5] pointed out that: 'There is no problem that is so vexing and loaded with emotion and conflicting interests as the language problem. The desire of each individual to use his native language, national aspirations for a unifying language, the stress upon English for economic, scientific, and other pursuits, the desire of a few to perpetuate Spanish, and the basic right of all people to share in the decision as to the language they will use—all these compound the difficulty. Proposals of different individuals and groups regarding the solution of the language problem are interesting, and in many cases helpful, but none as yet has been found fully acceptable from an educational point of view.'

While some recent studies have shown a high rate of illiteracy even in

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1. Also see pp. 586-7.
2. op. cit., Article II, Sections 10-12, pp. 8-9.
3. Elsewhere referred to as Pilipino.
4. That is, three lecture hours per week over four semesters.
5. J. Chester Swanson *et al.*, *A Survey of the Public Schools of the Philippines—1960*, prepared by a team of Americans and Philipinos chosen by the International Co-operation Administration of the United States and the National Economic Council of the Republic of the Philippines, p. 93 (Manila, United States Operations Mission to the Philippines, 1960).

grade 6, and about 34 per cent in English as against 26 per cent in Pilipino, others suggest that a careful comparison of achievement (in reading, language, arithmetic, social studies, Pilipino, health and science) between pupils taught in two and in three languages reveals no significant differences in the results for the two systems.[1] It is suggested that this may be due to the fact that the eight major vernaculars are phonetically and structurally similar to each other and to Pilipino, so that little additional effort is required in learning the national language as well as a vernacular.

The Noss Report[2] considers that so much emphasis is given to language teaching in the first four years of elementary school that by the end of such schooling, when the pupil is just beginning to understand other subjects: '. . . he may be a linguistic virtuoso, but he has very little other education of either practical or academic value. If he drops out at this point, it is not with outstanding prospects for future employment.

'This is not to undervalue the goal of literacy, but simply to point out that language training has to be paid for in one way or another. Using the language to be learned as a medium of instruction before it has been fully learned is a short-cut to language learning, but it is not a short-cut to general learning. This particular effect, combined with the short ten-year period of pre-university schooling, also shows up in the quality of preparation of students for higher education.'

Primary education

While public elementary education is free and was, in principle, made compulsory by Act No. 896 in 1953, the Act still remains to be fully implemented. Whereas in crude terms nearly 94 per cent of the 7-12 age-group was in elementary school in 1961/62—and in 1962/63 this figure had risen to 98.7 per cent—there were a substantial number of pupils in all grades who were two or more years above the normal age, the percentage of these ranging from about 19 per cent in grade 1 to a high point of 25 per cent in grade 4. Thus the 7-12 year school enrolment formed only around 80 per cent of the corresponding population age-group in 1961/62.

A more critical situation is presented by a substantial rate of drop-outs and retardation. While for public schools the drop-out rate between grades 1 and 6 steadily decreased from about 66 per cent in 1953/54 to 51 per cent in 1962/63, this still means that of those who enter grade 1 only about 70 per cent reach grade 4 and less than 50 per cent complete grade 6. Public School Bureau calculations indicate[3] that between 1953/54 and 1962/63 there was an average annual drop-out of 325,000 pupils and another 288,000 were retarded. In terms of finance, this amounted to a total average annual wastage of over 39 million pesos (also see pp. 611-15 on educational finance). Even so, the completion and class promotion rates of the Philippines compare favourably with those of most other countries in the region, though recent studies indicate an alarmingly high rate of illiteracy not only among grade 4 but also among grade 6 pupils.

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[1] *Annual Report, 1963/64, Research, Evaluation and Guidance Division, Bureau of Public Schools*, pp. 13-15 (Manila, May 1964, mimeo.).

[2] Volume III, Part 2, of this study.

[3] *1963 Statistical Bulletin, Research, Evaluation and Guidance Division, Bureau of Public Schools*, pp. 100-1 (Manila, February 1965).

Surveys by the Bureau of Public Schools, carried out between 1960 and 1963, showed[1] that up to 47[2] per cent of the fourth graders were illiterate[3] in the vernacular, 63 per cent in Pilipino and 71 per cent in English. Similar tests administered to sixth-graders indicated that 26 per cent remained illiterate in Pilipino and 34 per cent in English. Finding this situation 'deplorable' and presenting a 'challenge (to) the best efforts of our schools',[4] the report concluded that 'the data on hand suggest that it might be easier to make our children literate in Pilipino than in English. This observation should be carefully considered in educational planning'.[5]

According to a National Survey Committee[6] on drop-outs, educational factors[7] were responsible for 38 per cent of the drop-outs; economic factors[8] for another 38 per cent; poor home conditions for 15 per cent, and various health disorders for the remaining 9 per cent. The Swanson Report[9] also blamed lack of supplementary readers and library books,[10] large and cramped classes (in some cases more than sixty pupils in small rooms); lack of adequate and systematic supervision; lack of instruction guides for teachers; ineffective methods relying largely on learning by rote; effects of short double sessions; and lack of specialized teaching at the intermediate level.

Despite the fact that there has been a continuous expansion and upgrading of schools to include all six elementary grades, there were still in 1962/63 some 60 per cent of elementary schools which had only the first four or fewer primary grades, most of them located in barrios. This surely influences the drop-out rate when transfer from one school to another involves a considerable distance. However, while, taking the 1957/58 to 1962/63 cohort, it is found that the highest drop-outs have occurred between grades 1-2 (15 per cent) and 4-5 (20 per cent), there is not the heavy concentration at these points that is characteristic of most other countries of the region.

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[1] *Annual Report, 1963/64*, op. cit., pp. 8-13.

[2] Fifty per cent in 1960 and 47 per cent in 1961.

[3] Including those who even if they could read were unable to write a simple intelligible letter.

[4] *Annual Report, 1963/64*, op. cit., p. 10.

[5] ibid., p. 13.

[6] *Republic of the Philippines, Report on the Implementation of the Karachi Plan*, p. 33; Unesco Conference of Ministers of Education of Asian Member States, Tokyo, 2-11 April 1962 (Bangkok, Unesco/MINEDAS/6/Philippines, April 1962, mimeo.).

[7] That is: 'lack of interest, inability of pupils to get books, distance from school, over-age for given grade, onerous contributions, dislike for the teacher, irregular attendance, and influence of bad companions'.

[8] That is: 'annual income of drop-outs' families was below 300 to 400 pesos and 85 per cent had incomes lower than that earned by one person on the lowest basic wage range'.

[9] *A Survey of the Public Schools of the Philippines—1960*, op. cit., pp. 45-9.

[10] Average textbook/pupil ratios were in 1962 reported as ranging between 1 : 4 to 1 : 14 for grades 1 to 6.

Teacher/pupil and supervisor/teacher ratios were very satisfactory in 1962/63: staffing ratios in public schools were 1 : 37 for grades 1-4 and 1:22 for grades 4-5; in private schools 1:39 and 1:32. There was one supervisor to 98 teachers and one superintendent or assistant superintendent to 13 divisional or district supervisors. While about 74 per cent of all public elementary school-teachers are women, all superintendents and most supervisors are men.

Secondary education (general and vocational)

As early as 1931 a Committee on the Reorganization of Secondary Education began studies leading to recommendations for the adoption of a comprehensive secondary school system 'embracing all curricula and constituting one unified organization'.[1] Thereafter, several experimental schools tried out such programmes, and resolutions favouring the universal adoption of a comprehensive system were passed at the Conference on Secondary Education held in October 1939 and the Thirty-sixth Annual Convention of Division Superintendents in May 1940. But at this point the Second World War interrupted further progress, and it was not until 1945 that all public schools were required to adopt a general curriculum. Three years later, however, a Joint Congressional Committee on Education criticized the secondary school for not 'fulfilling its function of preparing the youth for vocational competence as prescribed by the Constitution'. The 1957 Revised Educational Programme, among other things, proposed the following reorganization:[2]

'In order to implement the objectives of secondary education there should be a common general curriculum for all students in the first and second years and differentiated curricula in the third and fourth years leading to either a college or a technical vocational course. . . .

'The curriculum of each school should provide vocational courses which are geared to the occupations, resources and industries of the community or region where the school is located. Such courses should aim to develop necessary competencies which will enable students to help in the economic development of the community and to further cultivate and strengthen habits of industry, initiative, and respect for the dignity of labour.

'To insure effective occupational competence, part of the training should be given in the school shops, school farms, and school laboratories as pilot and demonstration centres, and part on the farms, and whenever possible in shops, factories, stores, offices and homes in the community for the acquisition of skills and experiences needed in the local occupation and industries.

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[1] *Report on the Reorganization of Secondary Education*, Bureau of Education (Bulletin No. 11, 1940).

[2] *The Revised Philippine Educational Program*, op. cit., Article III, Section 2, pp. 10-13.

'The school should make every effort to secure the co-operation of the local factories, shops, stores, farms and other places of work available in the community in which the students can gain experiences and skills through actual work and performance in the job.'

While a certain flexibility was to be permitted, it was intended to introduce this pattern in stages throughout the system by 1960/61. However, largely through lack of finance and the reluctance or inability of private schools to incur additional expenses for vocational education programmes, the so-called '2-2 Plan' has met with only partial success. In 1964, Professor Gonzalez observed[1] that the 2-2 Plan: '... was not carried out effectively due to the great cost of having a vocational programme. The 2-2 Plan vocational part, however, must be distinguished from the vocational curriculum of the national vocational schools which are under the new Bureau of Vocational Education.

'Perhaps it would be good to have a general four-year high school course, leading to a high school diploma, common to all.... After this, then the student may be guided to take up an extra year preparatory to going to the university—specializing in either sciences or humanities—or go straight to a vocational-technical college.'

Professor Gonzalez, however, also adds that some introductory vocational courses should be included in the third and fourth years of secondary school: 'We are not a rich country and we should see to it that even those who finish high school should be given an opportunity to prepare for a useful occupation in case the student cannot or does not continue his studies.... This would in a way gradually remove that abhorrence that some people have for vocational training—an attitude which has caused many to believe that they are superior if they enter a purely academic high school course.... Moreover, the inclusion of vocational subjects in the third and fourth years will make the transition not too abrupt for those who decide to go to vocational-technical colleges.'

Earlier, in 1961, the Sinco Report on educational reform[2] had recommended the adoption of a basic secondary-school programme of three years, following on six years of compulsory elementary education, which would be terminal for the majority and preparatory for those proceeding to specialization. For the smaller number who have the required qualifications and facilities for higher education, there are two higher secondary schools open to them: the academic secondary school for the academically inclined and the vocational secondary school for the technically inclined. Both types of schools were to provide two-year courses and transfers from one to another were to be facilitated in accordance with the discovery of new inclinations or talents. But the collegiate school was primarily conceived of as preparatory for academic higher education, the vocational school was supposed to 'aim at developing craftsmen or junior technicians'[1] as well as preparing students for higher vocational education, including two-year polytechnic schools designed to turn out skilled workers or senior technicians not quite on the same level of preparation and vocational competence as the professional technologist like the engineer.

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[1] Salvador Roxas Gonzalez [Director of Developmental Services (Education, Science, Health and Social Welfare), Office of the President, and Consultant in Higher Education to the Board of National Education]. *Fundamental Education Reforms*, pp. 13-15 (Manila, Programme Implementation Agency, Developmental Services, Office of the President, Philippine Government, revised, 25 February 1964, mimeo.).

[2] *Report of the Committee on the Reform of the Philippine Educational System* (Chairman: Vicente G. Sinco, president, University of the Philippines), p. 29 (Manila, Board of National Education, 1961).

These proposals and others also extending the total period of schooling continue under consideration, but the main obstacle in the implementation of any of these remains finance. None can be carried out adequately if more provincial and central financial support is not made available for secondary education. Thus, according to the Swanson Report,[2] 1960: 'The common reference to the general high school as the "weakest link in the Philippine educational system" stems primarily from the fact that these schools are supported almost entirely from tuition fees, which are grossly inadequate to meet their needs. Since the general curriculum is more expensive than the strictly academic curriculum the staggering problem faced by the general high school is obvious.'

In terms of quantitative development, very rapid expansion was achieved in the first five post-war years, the pre-war 1940/41 general public secondary enrolment increasing by 65 and that of private secondary enrolment by over 350 per cent in 1950/51. Thereafter progress has been much more gradual: between 1952/53 and 1962/63 public secondary enrolment increased by 40 per cent and private by only 21 per cent. The public vocational form of secondary education, included in this calculation, expanded somewhat more rapidly at 77 per cent, but specific vocational education in 1962/63 remained less than 14 per cent of the total public and private secondary enrolment.

Between 1952/53 and 1961/62, less than 53 per cent of the grade 6 pupils in both public and private schools entered the first year of secondary education in the following year, but thereafter the rate of promotion was fairly high with few drop-outs or repeaters: an average of about 60 per cent of the respective secondary entry reached the final grade 10 four years later. By far the larger proportion of pupils dropping out—over 70 per cent—consisted of male pupils, with the drop-out rate for females alone no higher than 5 per cent. While female pupils form somewhat less than 50 per cent of total primary and secondary enrolments, the Philippines is the only country in the world where well over 50 per cent of the total higher education enrolment is female and women form more than 65 per cent of the small post-graduate enrolment.

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[1] ibid., p. 49.

[2] *A Survey of the Public Schools of the Philippines—1960*, op. cit., p. 119.

Standards of secondary education are generally found to have declined significantly since pre-war days. Dr. Monzon, president of Manuel L. Quezon University, comments that: '... the academic preparation of our present high-school graduates is equivalent to that of first year, second semester, high school pre-war students. Is there any wonder, therefore, that our present college freshmen suffer heavily in comparison with those of pre-war years?'[1]

Using the same Stanford achievement tests utilized thirty-five years ago, the Swanson survey team found[2] that in terms of the earlier performance, in 1960 equivalent grades were generally backward: in arithmetical computation and reasoning, a little over two years; in language two-and-a-half years. While indicating that the factors affecting standards in elementary education (see pp. 560-1) also apply to secondary education as well as indirectly influencing them through the lowered quality of elementary school leavers, the Swanson Report also points out that whereas the 1925 group tested had a median age of 16.8 years, in 1960 this was only about 14.4 years. 'Out of fairness to the present students it should be noted that a span of 28 months, despite the grade equivalency, could certainly have bearing on the educational achievement of these students.'[3]

Teacher/pupil ratios were tolerable in 1961/62[4] at 1 : 24 public (over 60 per cent of the teachers were women) and 1:31 for private secondary schools; but the *Report on Educational Developments in 1964/65*[5] points out that at the secondary level there is a shortage of qualified teachers for such subjects as mathematics, science, chemistry and physics, while there is an over-supply of qualified teachers of home economics and social studies. To deal with this situation, one-year programmes in science, mathematics and English teaching have been set up for selected secondary-school teachers at the University of the Philippines, with the assistance of the National Science Development Board (NSDB), and at the Philippine Normal College, with the assistance of the Philippine Centre for Language Study and the Asia Foundation. However, the NSDB, recommending emphasis on the improvement of science curricula and teaching standards in teacher-training institutions, also:

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[1] Leoncio B. Monzon, 'PACU Relations with the Government', *Proceedings in Private Education, its contributions and its problems*, p. 55; 1961 PACU (Philippine Association of Colleges and Universities) National Educational Conference, Baguio City, 16-18 February 1961.

[2] *A Survey of the Public Schools of the Philippines—1960*, op. cit., p. 149.

[3] ibid., p. 150.

[4] Available data on 1962/63 is strangely conflicting. The *Report on Educational Developments in 1964/65* (op. cit., p. 9) gives the number of public secondary-school teachers in this year as 12,038, but both the *School Statistics, 1962/63* (op. cit., p. 6) and the *1963 Statistical Bulletin* (op. cit., p. 64) as less than 4,000, with a male/female ratio of 1 : 3.

[5] op. cit., p. 21.

'... believes that if it concentrates its resources on upgrading teachers in the field ... and neglects the training that prepares prospective science teachers, there will be no end to re-teaching actual teachers. The NSDB believes that it would be far more economical with its limited resources to help upgrade teacher-training institutes...'.[1] In addition, 'realizing that the cultivation of talents in science and mathematics is a key to the economic and technological development and progress of a nation',[2] the Bureau of Public Schools has, in collaboration with the United States Peace Corps/Philippines, embarked on a long-range programme to improve secondary standards in these fields. Eleven of twenty-five pilot high schools established between 1962 and 1965 in strategic provincial locations were, in 1963, serving as experimental demonstration centres for the improvement of the curriculum in science and mathematics.

Public secondary vocational education[3]

In the public sector specialized vocational education (not the preparatory vocational education offered by general secondary schools) is provided by four major types of schools: agricultural, trade or technical, fisheries, and home industry centres for adults and school leavers. In addition, chartered State colleges also furnish secondary-level courses in agriculture, arts and trades, and commerce.

The agricultural schools may be regional, provincial or divisional, rural or an integral part of the two chartered State colleges. In all of them a recently revised secondary agricultural curriculum and secondary 'homemaking' courses are offered and supplemented by special instruction—for instance, in poultry, piggery, farm management, gardening, tractor operation and field crops—for schools leavers and adults.[4]

Trade or technical schools, including the junior sections of the Chartered Colleges of Arts and Trade and of Technology, provide both pre- and in-service programmes of training at the secondary level, including: (a) a wide range of courses preparing pupils for participation in industrial enterprises as skilled workmen, foremen, supervisors or plant managers; (b) a four-year secondary trade curriculum developing the necessary skills for specific trades 'as well as for participation in a democratic society';[5] and (c) a two-year special trade curriculum designed to equip individuals over 16 years of age

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[1] *The National Science Development Board and Higher Education*, p. 20 (Manila, NSDB, 1961).

[2] *The Philippine Public Schools, Annual Report of the Director of Public Schools, for the School Year 1962/63*, p. 8 (Manila, April 1963).

[3] Including that provided by chartered State colleges.

[4] There are also a number of farm schools at the elementary level, but these are considered to provide a temporary arrangement to meet specific needs of certain rural areas.

[5] *The Philippine Public Schools*, op. cit., p. 12.

TABLE 4. Public vocational secondary schools and their enrolments, 1945/46 to 1962/63[1]

Year	Agriculture		Trade/technical		Fishery		Total	
	No.	Enrolment	No.	Enrolment	No.	Enrolment	No.	Enrolment
1945/46	20	5 962	23	4 398	—[2]	—	43	10 360
1953/54	31	14 129	32	29 287	—[2]	—	63	43 416
1959/60	52	17 631	47	36 407	13	2 688	112	56 726
1962/63[3]	89	29 265	. . .	39 249[4]	28	4 369	. . .	72 883

. . . Data not available.

1. Data on secondary commerce and business courses are not included. as the public provision made through the Philippine College of Commerce in 1962 catered to an enrolment of only 1,168 as against private secondary courses enrolling over 25,000.
2. Only demonstration stations, of which there were seven in 1956/57 enrolling 862 trainees.
3. Includes data on secondary provisions made by the chartered institutions.
4. Estimated by subtracting agricultural and fishery enrolments from total Bureau of Vocational Education enrolment of 67,271 plus a 5,612 secondary vocational enrolment in chartered institutions.

with concentrated skill training supplemented by theoretical instruction. Efforts are continuing to develop sandwich-course apprenticeship/training programmes with factories, and in 1962/63 there were 81 companies participating in such programmes. Four-year vocational teacher-training programmes are also provided by a number of these schools, particularly by the chartered colleges where they are at a post-secondary level leading to a first degree in education.

Until 1957, fishery training was provided through demonstration centres of the Department of Agriculture and Natural Resources, but since then the Bureau of Public Schools—now supplanted by the new Bureau of Vocational Education—has developed a full four-year secondary vocational curriculum.

The growth in the number and enrolment of these different types of vocational schools is indicated in Table 4 for selected years between 1945/46 and 1962/63.

There has been a very large and rapid expansion in all fields, particularly between 1953/54 and 1962/63 in agriculture, where enrolments have more than doubled in nine years. While recent data are not available, if some improvement has not been made since the 1956/57 situation, when 36 per cent of the secondary agricultural graduates were either continuing with non-agricultural studies, unemployed, or unaccounted for,[1] a substantial part of a heavy investment will have been largely unproductive. The 1962/63 annual report of the Director of Public Schools[2] lists as major problems: (a) 'unwar-

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[1] *A Survey of the Public Schools of the Philippines—1960*, op. cit., p. 208.

[2] *The Philippine Public Schools*, op. cit., p. 68.

TABLE 5. Enrolments by grades, 1962/63, public and private[1]

Grade		Male	Female	Total
Primary:	1	668 025	596 785	1 264 810
	2	502 355	459 487	961 842
	3	435 322	393 049	828 371
	4	362 281	341 814	704 095
SUB-TOTAL 1-4		1 967 983	1 791 135	3 759 118
Intermediate:	5	304 025	287 865	591 890
	6	237 636	225 351	462 997
	7[2]	1 736	2 197	3 933
	8[3]	74	51	125
SUB-TOTAL 5-8		543 471	515 464	1 058 935
BVE[4]				211
TOTAL (elementary)		**2 511 454**	**2 306 599**	**4 818 264**
Secondary:	7	126 910	108 754	235 664
	8	95 952	85 194	181 146
	9	78 714	70 347	149 061
	10	63 911	61 207	125 118
	11[5]	571	172	743
	12	542	247	789
BVE[4]				67 271
TOTAL (secondary)		**366 600**	**325 921**	**759 792**
Higher education:	11	62 892	66 709	129 601
	12	40 792	47 772	88 564
	13	32 175	37 963	70 138
	14	28 647	31 664	60 311
	15	5 039	2 311	7 388
	16	13	9	22
Graduate		2 565	4 823	7 350
BVE[4]				8 576
Unclassified[6]		116	376	492
TOTAL (higher education)		**172 239**	**191 627**	**371 442**

Source: *School Statistics 1962-63*, op. cit., Table 1.

1. Including enrolments at all levels in the chartered State universities and colleges, but not the enrolments in short special vocational courses offered by private colleges and universities, totalling 51,354 in 1962/63 (mainly in evening classes).

2, 3. Experimental grade 7 enrolments in a few public schools, and grades 7-8 in intermediate courses of four private American schools.

4. Bureau of Vocational Education (see p. 554) school enrolments for which breakdowns by grade and sex are not available.

5. Special grade 11 and 12 night secondary courses, mainly of a vocational type, in certain private schools.

6. Non-degree, non-credit, special and part-time students included.

ranted conversion of certain general secondary schools into agricultural, trade, or vocational schools or the establishment of such vocational schools, giving rise to serious financing problems'; and (b) 'inadequate financing of some vital aspects of the industrial education programme, particularly the apprenticeship training programme, textile training programme, and the research programme.'

The educational pyramid

As in other countries, the base of the educational pyramid is very broad, but Table 5 shows that the pyramid tapers much more gradually than is usual, especially in the transition from secondary to higher education where subsequent enrolment forms nearly 50 per cent of that of the earlier stage.

Furthermore, unlike other countries, the proportion of female enrolments does not decline from one level of education to the next,[1] women comprising over 50 per cent of the total higher education enrolment.

HIGHER EDUCATION

STRUCTURE, ORGANIZATION AND ADMINISTRATION

From such accounts as are available, it appears that before the arrival of the Spaniards, although the Filipinos had at least two systems of writing and, according to some observers, literacy was widespread among women as well as men,[2] there was no organized system of education. Immediately after the Spanish conquest of the Philippines, except for parochial schools operated by missionaries (which provided some general and vocational as well as religious instruction), the first educational institutions established were for the higher levels of learning. As early as 1601, the Jesuits founded the College of San José under ecclesiastical licence, and this, until the expulsion of the Jesuits in 1768, gave instruction in philosophy, theology and the humanities. Another Jesuit college, Colegio de San Ildefonso—later to become the University of San Carlos (1953)—was started in 1606, and after closure in 1769, reopened under the charge of 'secular' priests in 1783 as Colegio-Seminario de San Carlos. Before his death in 1605, Father Miguel de Benavides,

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[1] That is: apart from an insignificant drop from 47 per cent in the primary to 43 per cent in the intermediate level, which is more than made up by a rise to 49 per cent at the secondary level.

[2] According to Father Pedro Chirino, one of the first to make a study of Filipino scripts and, with other Jesuit fathers, founder of the first school at Cebu in 1595, 'all these islanders are much given to reading and writing, and there is hardly a man, and much less a woman, who does not read and write in the letters used in the island of Manila'. Quoted in *Chirino's Relation,* 1603, in E. H. Blair, and J. A. Robertson, *The Philippines Islands, 1493-1898,* Vol. XII (Cleveland, Arthur H. Clark Company, 1903-09).

Archbishop of Manila, a Dominican, had both contemplated the foundation of an institution of higher learning and opposed Jesuit attempts to secure a licence for the establishment of a university. Benavides succeeded, and measures initiated by him, in April 1611, led to the foundation of the Colegio Seminario de Santo Tomas de Notra Senora del Rosario. It provided instruction in arts, philosophy and religion, and in 1619 was accorded the right to grant academic degrees.

In 1644/45 Pope Innocent X elevated the college to the rank of a university, which adopted the statutes of the University of Mexico, themselves patterned on those of the great University of Salamanca, founded in the twelfth century. Faculties of Canon Law and of Civil Law were set up in 1734, of Medicine and Pharmacy in 1871, of Science and of Philosophy and Letters in 1896, and a subsequent expansion in all major fields of study resulted in the establishment among the eigtheen divisions of the university, of a Faculty of Engineering (1907),[1] a College of Architecture and Fine Arts (1931), a Conservatory of Music (1945), a Normal School (1940) and a Graduate School (1938). While it has been suggested that in the early days of Spanish rule post-primary education was largely restricted to children of Spanish descent or of privileged Filipinos, it also appears to be true that the intellectual strength of the Filipino people was for centuries derived from the Santo Tomas University.

The fourth institution of higher education to be established in the Philippines was the Ateneo de Manila in 1865, based on a primary school which had been entrusted to Jesuits returning from exile in 1859. The Ateneo was empowered to grant degrees in liberal arts, accounting, farming and surveying. Among distinguished alumni, it counts the great Filipino writer, poet and patriot, José Rizal.

The subsequent development of higher education was accelerated under American rule, which from the outset had included, in its basic objectives, 'the cultivation of letters, science, and the liberal and practical arts'[2] and the establishment of a system of universal, free primary education. First, while the primary schools, fewer than 1,000—with an enrolment of less than 100,000—in 1900 expanded to 4,500 in 1910, with an enrolment of some 600,000 pupils, numerous normal and agricultural schools were also set up. Then in 1908 by Act No. 1870 of the National Legislature steps were taken to establish the University of the Philippines as a State institution, and in 1910 it incorporated the Philippine Medical School started in 1907 as a college. Of its constituent colleges, the College of Agriculture started in 1909; the College of Liberal Arts, which had previously existed as a government school in the Bureau of Education, under the title Junior College of Liberal

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[1] Through conversion of the Faculty of Science! Currently, too, science subjects are offered, with the exception of pharmacy, only up to the first-degree level in the College of Liberal Arts.

[2] *Philippine Commission Report, 1900*, Vol. I, pp. 3-5.

Arts; the College of Engineering; the College of Veterinary Medicine and the School of Fine Arts. By December 1941, at the beginning of the Pacific War, the university had an enrolment of some 8,000 students and had added the following divisions: College of Law (1911); College of Education (1918); College of Pharmacy (1935); School of Forestry at Los Baños, Laguna (1916; converted to a college in 1949); Conservatory of Music (1916); School of Dentistry (which became a college in 1948); Junior College of Arts in Cebu City; a Summer School organizing extension courses in Manila and Baguio (1924); Institute of Hygiene (1938); College of Business Administration (1933); School of Public Health Nursing (1929).

While during this time, i.e., from 1910 to 1941, only one other State institution of higher education, the Mindanao Agricultural College, had been established in 1928 at Masuan, Bukidnon, a number of private institutions were set up, and the following received State recognition as universities (also see p. 576): University of Manila (1921); National University, Manila (1921); Centro Escolar University, Manila (1930); Philippine Women's University, Manila (1932); Far Eastern University, Manila (1934); Silliman University, Jumaguete City, Negros Oriental (1935); Adamson University, Manila (1941). Thus with the exception of two full university-level institutions, in 1941 all others were situated in Manila.

During the war, and particularly during the liberation campaign of 1945, all of these suffered grievous destruction: indeed, all of the buildings and equipment, including the library, of the University of the Philippines, valued at nearly 8 million pesos, were burned and a new site for the university was finally developed in 1948 in Quezon City 15 kilometres from the centre of Manila. Reconstruction occupied much of the immediate postwar effort in higher education; but in the 1950's, six more State colleges, including the Philippine Normal College, joined the Mindanao Agricultural College—three beyond Manila in different parts of the country; a second State university, the University of Mindanao, was founded in 1961 at Marawi City; and by 1963/64 there were a total of 434 recognized private institutions of higher education, including 26 universities. While most of the larger institutions are concentrated in Manila and a few other large provincial centres, others are to be found in 18 regional districts covering all parts of the country. Total public and private higher education enrolments increased from about 46,000 in 1946/47 to over 371,000 in 1962/63.

Aims and objectives

The *Revised Philippine Educational Program* of 1957 defines the basic objectives of higher education:[1]

'Higher education shall be concerned with the conservation, transmission and extension of human knowledge, with the preparation of leaders in arts, sciences and the professions, and with the preservation and enrichment of Philippine culture. Leadership requires the higher quality in our human resources; and extension of the frontiers of knowledge demands a high degree of competence in specialized lines of study. Toward this end the government should extend every measure of assistance to implement the constitutional mandate for the promotion of arts, sciences, and letters.

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[1] op. cit., Article IV, Section 1.

'To be of maximum service to society, higher education should be allowed to grow and develop in an atmosphere of freedom and should always be guided by an enlightened love for God, of country and of fellow men.'

Subject to supervision for the purpose of guarding minimum standards, academic freedom and autonomy was thus recognized (also see pp. 577-9): 'the development and preparation of the curriculum for collegiate courses should be a prerogative of the college faculties concerned, subject to the approval of the Secretary of Education'.[1] At the same time it is also stated that: 'The Board of National Education encourages the colleges and universities to re-examine their courses and curricula and to direct them toward the effective implementation of the government programme for economic development. Conversely, the Department of Education should discourage the opening of courses in the overcrowded professions.

'The government should give encouragement to colleges and universities for the promotion of research, especially in the field of industry, Philippine arts and culture, science and social problems.'[2]

Thus the need to co-ordinate educational with economic development and the importance of the quality as well as the quantities of graduate outputs in meeting national manpower requirements are clearly noted. However, the control exercised to stimulate and promote such development has been only partially effective.

Types of institutions and the organization and administration of higher education

Within the classification of institutions of higher education as public or private are certain types of institutions with special characteristics. Thus the public sector includes: (a) autonomous chartered State institutions, which in turn include two universities, two agricultural colleges, two institutes of technology, one college of arts and trade and one teacher-training college; (b) eight teacher-training colleges administered by the Bureau of Public Schools;[3] (c) a number of other public vocational colleges administered by the Bureau of Vocational Education. The private sector, in terms of organization comprises: (a) multi-faculty universities; (b) colleges offering a minimum of four-year degree courses—a few of these are basically vocational institutions, including only one devoted exclusively to teacher training (National Teachers College, founded 1951 in Manila); and (c) special vocational institutions offering short-term courses at the post-secondary level, mainly in commerce, secretarial training, and the trades.[1] Most public as well as many private institutions include secondary and often primary schools: this can lead to some confusion in enrolment and graduation statistics when distinctions between the levels are not indicated.

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[1] ibid., Article IV, Section 3.

[2] ibid., Article IV, Sections 4-5.

[3] Which, incidentally, when giving statistics on the third level of education in its annual *Statistical Bulletin* only includes enrolments in these colleges and until 1963 did not clearly indicate this for the unwary reader.

Organizationally, private institutions may be denominational—in the main Catholic—or secular: most are profit-making bodies registered as stock-holding corporations. There are certainly some private colleges in other parts of the world which make a significant profit, but the predominance of such institutions in the Philippines is unique. Only a very few are non-stock and non-profit institutions, and to these the University of the Philippines offers a helping hand through a system of affiliation if they maintain adequate standards according to the rules of the university, are financially sound and agree to the rules of affiliation. Except for these non-profit institutions, all others are subject to a 10 per cent income tax,[2] a donations tax, and unlike some favoured industries, must pay substantial duties on the importation of educational equipment and materials.

The president of the Philippine Association of Colleges and Universities, Dr. Sotero H. Laurel, has pointed out[3] that in 1960/61 the average profit per institution worked out at no more than 9,000 pesos in the year, that many of the smaller colleges have not declared any dividends for years and that of those who have, the dividends are 'often not more than 6 per cent a year'.[4]

On the other hand, the Swanson Report[5] while admitting that some of the profit-making institutions offer a good education adds: 'But the temptation to "cut corners", to make more money, is very great.... When schools are operated for profit they have to make decisions as to whether some available fund shall be used, on the one hand, to expand library resources or provide additional science equipment, or on the other hand to return dividends to the owners or stock holders. The decision may not always be in favour of the students who are paying for tuition presumably for the best education possible.'[1] In so far as the public sector does not provide facilities to meet the full range of demand, or incentives to prompt others to help meet it, many a student would not be able to buy any secondary or higher education were it not for the money that is invested in colleges for profit. It would therefore seem that a scheme of incentives, ranging from the provision of income tax exemptions on donations to non-profit institutions and special facilities for imports of educational materials to subsidies or other forms of assistance—in kind as well as financial—would be an economical method of raising standards in higher education.

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[1] (a) The institutions listed under (c) and their enrolments are not included in the following higher education statistics. (b) Junior colleges offering only the first two years of higher education leading to an associateship are now required by law to form part of an institution offering at least one full graduate course.

[2] As compared with 20 to 28 per cent of net income in the case of other corporations.

[3] Sotero H. Laurel, *State Power over Private Schools* (Manila, PACU, 1964).

[4] It may be noted that the basic bank rate for loans was also 6 per cent in 1964.

[5] *A Survey of the Public Schools of the Philippines—1960*, op. cit., p. 299.

Professor Gonzalez,[2] while pointing out that President Macapagal, addressing the PACU Annual Convention in May 1963, praised the efforts of private schools, but lamented that many were run solely for profit, adds: 'Yet businessmen will be businessmen, they will not invest money where no monetary profits are to be gained. What can be done is to educate them to consider education not as just any ordinary business enterprise, but as a mission—and therefore to ask them to limit the dividends of stock-corporation institutions to a reasonable minimum. The government should realize that if a centrally located downtown university is converted into office spaces, it will earn money as rent.

'The corresponding amount can be calculated and allowed to be given to stock holders as the equivalent of dividends.'[3]

Furthermore, Professor Gonzalez also suggests that, although the government cannot afford to do everything at once in the form of needed assistance: 'It can, for example, begin by giving subsidies to private universities and to those colleges which have a competent graduate school; in the meanwhile it can include the other institutions in a policy of tax exemption for all universities and colleges. The government can also immediately remove taxes from endowments in order to encourage philanthropy. Taxes on scientific books and journals may also be removed for a period of, say, ten years. . . .'

While the regulation and inspection of private schools, colleges and universities is the responsibility of the Director and Bureau of Private Schools, under the authority of the Secretary of Education, all higher education policy and over-all developments are intended to be formulated and co-ordinated by the Board of National Education (BNE), which includes a Committee on Higher Education, assisted by the National Science Development Board (NSDB) and with the advice of boards of examiners and professional associations on professional course requirements and curricula. The Board of National Education has already been described as, subject to congressional approval, the supreme policy-making body; but the Swanson Report,[1] while commending its work and its specialist as well as eclectic membership, also noted that 'to be effective, however, the legislative and executive leadership must accept the findings of such a board and look to it for leadership in this field. There is evidence that this has not always been the case'. This view has been expressed by Dr. Sotero H. Laurel with some emphasis: 'In the first place, the Board of National Education has failed to assume the leadership in the formulation of educational policies, and Congress, at the same time, contrary to its own declared purposes in creating the Board has considered and enacted various educational measures without the benefit of previous consultation with said body.'[2] In a paper presented at the ASAIHL seminar on 'The Role of Universities in Human Resource Development' held in February 1966, at the University of Malaya, Dr. Laurel[3] adds: 'If the legislature is to consider any important educational measure involving policy' it should not be improper for it at least to consult with the Board of National Education and get a properly studied and thoroughly considered recommendation or, at the very least, a "position paper"... it should by all means provide that chairmanship and membership in the BNE be as much as is practicable the main activities of the persons occupying them, if the positions could not be made full-time ones. Educational policy-making should not be regarded as the casual avocation of extremely busy men of affairs.'

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[1] That such a situation may occur is obvious: that it does occur, and whether rarely, from time to time, or frequently, is not substantiated.

[2] *Fundamental Educational Reforms*, op. cit., pp. 32-3.

[3] It would, however, not be surprising if this did not come to more than the quoted dividend of 6 per cent.

The NSDB, set up in accordance with the so-called Science Act of 1958 (Republic Act No. 2067), is reviewed in some detail in the section on 'Quality in Higher Education' (pp. 592-9 below), but it is also 'crucially involved in higher education.... Committed to promoting qualitative and quantitative excellence in science efforts, it accepts its full obligation to help, in all ways possible, the institutions of higher learning'.[4] Specific provisions of the Science Act bearing on the education objectives and functions of the NSDB include the duty to: 'Undertake, in collaboration with the Department of Education, a thorough survey of the educational system and to determine, as well as to recommend to the corresponding authorities, the measures which may be necessary to make it an effective instrument for scientific advancement.'[5] The Board and its agencies, as well as the University of the Philippines, are empowered to receive grants, bequests and donations which are tax-free to aid scientific and technological investigations or establish scholarships in science and technology. Furthermore: 'The Board shall promote and, in its discretion, assist in the establishment of private foundations for scientific advancement as well as specific research and development projects by private individuals, firms and institutions. All funds contributed to the support and

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1. *A Survey of the Public Schools of the Philippines—1960*, op. cit., p. 465.
2. *State Power over Private Schools*, op. cit., p. 52.
3. Sotero H. Laurel, 'The Needs and Problems of Private Schools'.
4. *The National Science Development Board and Higher Education*, op. cit., p. 5.
5. ibid., p. 1.

maintenance of such foundations and their projects as well as specific research and development projects undertaken by private individuals and educational institutions, shall be tax exempt and deductible from the donor's income tax returns, upon certification by the Board that such foundations and funds are dedicated to scientific pursuits.'[1]

In view of the broad policy and executive functions of the NSDB in higher education, it is a little surprising that apparently it has no direct organizational link with the BNE,[2] and it is perhaps due to a similar lack of effective liaison that many protagonists of the rights of private institutions, speaking of problems caused by government taxation, ignore the provision for tax exemption in relation to scientific education and research, which could surely be eventually extended to the humanities and the social sciences.

Four private national educational bodies—two non-sectarian and two religious—also endeavour to promote co-operation and guard standards in the development of higher education: the Philippine Association of Colleges and Universities counts a non-sectarian membership of fourteen universities and eighteen colleges.[3] The Philippine Accrediting Association of Schools, Colleges and Universities (PAASCU), which includes four NSDB personnel as members, had by 1961 accredited eleven colleges, and the NSDB felt that 'this is a concrete implementation of the healthier policy of upgrading the educational system through the principle of self-supervision'.[4] The Catholic Educational Association of the Philippines in 1963 had a membership of 824 Catholic secondary and post-secondary institutions. The Association of Christian Schools and Colleges includes most of the relatively few Protestant schools and colleges. Originally, PACU and the two religious associations were all to have representation on the Board of National Education; but in 1964, PACU president Sotero H. Laurel,[5] complained that PACU had not been represented on the Board for the last three years, 'contrary to express provision of the law'.

This situation is typical of the constant friction between private higher education circles and the Department of Education over the nature of government regulation and supervision, though even the sharpest critics of government policy agree that some supervision to guard standards is necessary and that the quality of some private institutions leaves much to be desired. However, recent moves toward granting autonomy to certain private institutions with established standards should in future help to improve relationships and co-operation.

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[1] ibid., p. 3.

[2] Although in 1960, Dr. Teodoro Evangelista, president of Far Eastern University and a member of the PACU Board, served on both the NSDB and BNE governing bodies.

[3] In 1963, when the total number of non-sectarian universities was eighteen.

[4] *The National Science Development Board and Higher Education*, op. cit., p. 15.

[5] *State Power over Private Schools*, op. cit., p. 39.

The activities of the Department of Education in connexion with the approval of private school courses and the authority to grant degrees and diplomas are governed by a number of legislative enactments, which provide, *inter alia,* that the graduating students of approved private institutions shall be entitled to all the benefits and privileges enjoyed by graduates in similar courses of studies in the public or government schools. The Secretary of Education is also authorized to publish the minimum standards required of primary, intermediate, and high schools and colleges granting degrees and the minimum standards required of law, medical, dental, pharmaceutical, engineering, and agricultural schools or colleges and other special schools giving instruction of a technical or professional character.

Accordingly a Director of Private Education is responsible to the Secretary of Education for the inspection of schools and colleges; proposals on standard courses at all levels; reporting on the organization, financial arrangements, buildings, faculty and teaching staff, curricula and general conditions of all schools applying for recognition. He makes recommendations on their fitness or shortcomings which may lead to revocation of recognition, and, from time to time, prepares and publishes lists of recognized schools and colleges, setting out what courses have been recognized in each institution.

Specific requirements for the operation of colleges and universities include details of minimum standards for courses and curricula; staffing; buildings, grounds and equipment; laboratory and library facilities; and financial adequacy. But they also indicate broad minimum levels of scope and competence:[1] colleges and institutes of technology are required to operate courses of at least four years in length after graduation from an approved four-year secondary course. At least 60 per cent of the faculty are required to be on full-time service (except in highly technical or specialized courses) and with security of tenure. For approval as a university, an institution must operate a four-year undergraduate course in liberal arts and sciences and a recognized post-graduate course in liberal arts and sciences or in education, leading to the master's degree. Furthermore, approved universities must include at least three professional colleges and must possess and maintain a professionally administered library of at least 10,000 bound volumes of collegiate books.

University courses in liberal arts and professional fields must possess recent government recognition, and the undergraduate course must show strength in the arts, sciences, humanities, and social sciences which constitute the core of general education and the foundation of post-graduate studies. Of the three professional courses, at least one must be in technology, agriculture or medicine.

The university must undertake research and operate at least two graduate departments under a qualified and competent staff and with adequate funds, library and laboratory facilities. Post-graduate courses should lead at least to the master's degree, and the competence of staff will be judged by, among other criteria, their scholarly publications and research activities as well as by their leadership in the profession.

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[1] *Manual of Information for Private Schools,* sixth edition, pp. 9 *et seq.* (Manila, Bureau of Private Schools, Department of Education, 1960).

On the administrative side, the university must have adequate and stable financial resources and support in addition to tuition and other student fees. The administrators must be qualified educationists and members of the teaching staff must have opportunities to participate in the broad policies of the institution.

Such regulations are designed to set and guard basic minimum standards, but it is also clearly stated that: 'No attempt is made by the law to force all private schools into one standard mould, and the Department is always willing to consider recognition of courses which differ materially in content and method from those of the government schools. It insists, however, that such courses be properly labelled and made known to all concerned, in order that transfer credits provided for by law may not be given where the law does not intend them to be given.'[1] Thus recognition of such special courses does not only imply that they can be counted towards equivalence of qualifications awarded by government institutions unless they are 'in all essential elements the same as those offered in public or government schools'. The guaranteed transfer rights authorized by law[2] apply only to graduates who have taken the latter types of courses.

Article IV, Section 9 of the 1957 Revised Philippine Educational Programme states that: 'In our democratic system of government and way of life, our educational institutions can only grow in an atmosphere of constructive freedom under which they are encouraged to become centres where democratic practices are nurtured. The present system of recognizing schools does not provide the public a basis for distinguishing between schools of high standard and those meeting only the minimum requirements. The regulations herein promulgated are designed to encourage and reward efforts to higher standard of instruction by granting some measure of autonomy to deserving institutions. Autonomy will give meritorious institutions not only the greater freedom but also stronger incentive to improve their courses, upgrade standard of instruction, and increases the stability, finances and security of tenure of faculty members.[3] Conditions proposed for the grant of authority to an institution 'to administer its own affairs' required that it should have been in operation for at least ten years, and that all its courses should be fully recognized. A Committee on Evaluation, composed of the Director of Private Schools and two other members appointed by the Secretary of Education was to make the necessary recommendation after a survey and evaluation of the institution which would still be subject to annual review, as a result of which institutions that fail to maintain high standards could be deprived of their autonomy, reverting to their original status. The nature of the autonomy to be offered was defined as: 'The Board of Trustees of an autonomous institution shall formulate educational policies and exercise supervision and administration of its affairs in accordance with the laws, regulations, and statutes of a college or university, consistent with the policies of the government and the general requirements of the Department of Education. It may develop and introduce new courses to achieve its functions provided the same is reported to the Department of Education. The institution shall be free from the ordinary supervision exercised by the Bureau of Private Schools.'[1]

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[1] ibid., p. 3.

[2] But subject to the availability of places in a given institution and course.

[3] *General Education Policies, A Report of the Board of National Education, 1958*, pp. 76-7 (Manila, 1960).

Nevertheless the issue still remains only on the statute book. In 1961 a presidential directive to the Secretary of Education enjoined him to implement a policy of granting autonomy to selected institutions. Accordingly, an Autonomy Board was created for further study of the problem, with nine members, including two representatives from the NSDB, two from the Department of Education and five from private educational institutions. 'This plan of granting autonomy to deserving private schools' the NSDB[2] commented, 'is a milestone in the history of private education in the Philippines.' But the stone remains unpassed. In 1964 Professor Gonzalez[3] again advised: 'Curricular autonomy in higher education for deserving universities and colleges should be encouraged. . . . To stifle progress for the sake of uniformity of curricula is a very unsound policy for higher education[4] even in the undergraduate courses. . . . Government supervision of higher education, beginning with the undergraduate, should only be to ensure minimum standards and to see to it that certain minimum requirements regarding facilities and administrative functions are fulfilled; . . .' There no longer seem to be any basic differences of view on this issue between government authorities and responsible educationists in the private sector: the obstacles are apparently only those of setting up appropriate machinery and regulations for the implementation of an agreed policy. And there the matter, at the moment, rests.

But despite the system of recognition and supervision the standards and quality of a considerable number of institutions are far below the minimum requirements. Thus Professor Gonzalez observes with some vehemence: 'Why is the Philippines behind in science? The answer is well known: because the kind of higher education that is given in our universities and colleges in this country, apart from a few exceptions, is not good enough to produce graduates of high quality. And this is not only true of science but also of the other branches of human learning. Our contribution to the advancement of knowledge is so meagre that it is negligible. And to think that we have more universities and colleges than England or Germany....

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[1] ibid., p. 78.

[2] *The National Science Development Board and Higher Education*, op. cit., p. 14.

[3] *Fundamental Educational Reforms*, op. cit., p. 18.

[4] That uniformity of curricula necessarily stifles progress is certainly debatable: for instance, in France and the U.S.S.R. the curricula are centrally established and uniform, yet the high standard of education and educational development in both countries is undisputed.

'Most thinking men are aware that universities and colleges in the Philippines have lowered their standard of teaching to accommodate unprepared high school diploma holders and thereby they give them inferior degrees. Hence, they have literally flooded the country with college or university graduates who are incompetent for academic work and yet are ashamed to undertake manual labour.'[1] Among other measures to remedy this situation, while autonomy and government support would be of assistance, it would clearly also be necessary to make the system of supervision more effective, placing 'degree mill' institutions and courses on probation and withdrawing recognition from those that fail to improve. There is good precedent for this in the action taken between 1926 and 1931 when 'the entire system of supervision of private education was reorganized, the standards required by the government were elevated and clarified, and government recognition was withdrawn from a large number of private schools which would not or could not comply with regulations'.[2] Those private institutions that did survive increased their enrolments and a substantial improvement in standards was achieved.

The internal organization and administration of institutions of higher education differs in various ways according to the type of institution concerned, though with the exception of the teacher-training colleges administered by the Bureau of Public Schools, all have a relatively small governing body, membership varying between perhaps five and sixteen—in the form of a board of trustees, regents or directors.

The chartered universities are governed by a board of regents, either *ex-officio* members or appointees of the President of the Republic, with the consent of the Commission on Appointments. At the University of the Philippines all broad policy matters, permanent appointments of staff and financial affairs are subject to the approval of the Board, which, however, may, in its discretion, give considerable powers to the president, who is the chief executive of the university, or the university council and its executive committee. The university council has a wide membership, including effective representation from the teaching staff, and it takes final decisions on all academic affairs, subject to the approval of the Board. Its executive committee (in the case of the University of the Philippines this includes the president as *ex-officio* chairman, the secretary of the university, the dean of student affairs, the registrar and the deans and directors of colleges and schools) considers matters of policy and reports to the council, acts on behalf of the council on delegated matters, serves as a central agency to other committees that may be created by the council and, on request, advises the president on all questions pertaining to his office. In addition, the President of the Republic, the President of the Senate and the Speaker of the House of Representatives form a board of visitors charged with the responsibility of occasional visits and reviews of university affairs and finances and of reporting on these to Congress with such recommendations as they favour. Each college or school is administered by a dean or director, at the University of the Philippines assisted by an academic advisory committee and a secretary. The professional schools and colleges are themselves divided into specialized departments with a head who controls and supervises the department's courses and teaching staff. The University College, providing the first two years of general courses for all disciplines, the College of Arts and Sciences and the Graduate School of Arts and Sciences, which to a considerable extent share the same staff, are not divided into departments but into major divisions, which may, for appropriate courses, call upon the facilities of departments in other units of the university. The purpose of the scheme is to promote interdisciplinary co-operation and a co-ordinated approach to teaching. The first two institutions have divisions of the Humanities, Natural Sciences and Social Sciences, each of which embraces a group of related academic disciplines in which courses and teaching are co-ordinated under the supervision of a chairman, who acts for both the colleges. The Graduate School of Arts and Sciences organizes its divisional work under six-member committees on humanities, social sciences, physical sciences, and biological sciences.

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[1] *Fundamental Educational Reforms*, op. cit., pp. 6 and 7.

[2] Joseph R. Hayden, *The Philippines, A Study in National Development*, p. 551.

The chartered State colleges are governed by a board of trustees with a president as the chief executive, while the eight regional normal schools (teacher-training colleges) are under the direct supervision and control of the Bureau of Public Schools. The chief administrative officer of a normal school is the dean who is assisted by the supervisor of the laboratory (*Anglice* 'Demonstration') school, the registrar, and administrative, disbursing and supply officers. National vocational colleges, which include provision for teacher training in vocational subjects and were until recently under the Bureau of Public Schools, have a similar pattern of organization and administration under the supervision and control of the new Bureau of Vocational Education.

The private colleges and universities generally have boards of trustees as governing bodies; but a few have similar bodies called boards of regents (e.g., Manuel L. Quezon University) or boards of directors (e.g., University of San Augustin). In addition, some universities have an academic council (e.g., University of the East) or an academic senate (e.g., University of Santo Tomas). The executive head of the institution, generally called the president (but in a few cases the rector), is normally assisted by a vice-president and several other administrative officers, often including a secretary-general as well as a registrar or similar administrators. The universities are divided into units of colleges, schools, faculties or institutes[1] which are administered by deans or regents and these, in turn, are divided into specialized departments with departmental heads: the larger colleges may have similar patterns.

However, the broad policies of all private institutions are also influenced by their corporations, stock holders or the religious orders to which they belong, especially in terms of financial provisions, as well as by the supervision and regulation of the Bureau of Private Schools. Thus, the Hon. Emilio Abello, former executive secretary of PACU and former Philippine Ambassador to the United States, recently pointed out:[2] '... one is apt to forget a third party, the owner or stock holders of the school, who, while they remain in the background ... actually and effectively cast a decisive influence in the faculty-administration relationship, because they are the ones who write the cheques, hold the purse strings and pull back or let go the wherewithals to achieve just and harmonious relations between those two essential factors in any school—the school administration and the faculty. How often have I seen the school administrator, with furrowed brow, examine and study his budget, and throw his arms up in despair, because he cannot balance it on the basis of the funds which the owner or owners of his school assign to him for operational expenses.'

While the finance for private institutions largely comes from student fees, some of the denominational colleges are subsidized by religious orders and others receive occasional donations, mainly for capital expenditure. The public colleges are subsidized through the budget of the Department of Education. The chartered State universities and colleges depend on appropriations directly allocated by Act of Congress, supplementing income from endowments, donations and student fees. In the case of the University of the Philippines, the proportional 1963/64 sources of finance in percentages were: (a) local sources: National Government 34.5, student fees 14.5, land grants 7.6, miscellaneous (auxiliary enterprises, dormitories, cafetarias) 19.7; (b) outside sources: Agency for International Development 3.2, foundations 20.5.

General admission policies and procedures

While basic minimum qualifications for admission to various courses are set by the government—including a certificate that the student has passed the secondary examination from a public or recognized private school and a first degree as a prerequisite for entry to schools of law and medicine—there is wide variation in the additional criteria used for selection by different institutions: a few are very selective, but most admit any candidate who meets minimum requirements. Indeed, as permitted by government regulations, most institutions, under certain conditions, admit some students who do not even meet these (provided that the deficiency does not amount to more than two semester units of work and does not include more than one laboratory course) on probation for a year, in which they must make up all deficiencies and not take more than half the maximum load of collegiate courses.

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[1] The University of Santo Tomas uses a mixture of terms for its major divisions: faculty (e.g., Engineering), college (e.g., Education), school (e.g., Graduate), and Department (e.g., Military Science and Tactics).

[2] 'Address of the Guest of Honour', *Proceedings of the Third Biennial Educational Conference. Theme: Administration-Faculty Relations*, PACU, U.P. College of Agriculture, Los Baños, Laguna, 14-15 June 1963, p. 10.

Additional criteria used include grades obtained in high school, school progress reports, competitive or selective entrance examinations and interviews.[1] Thus the University of Mindanao requires that a candidate should either be among the top 40 per cent of his secondary graduating class or pass an entrance examination or, failing both these conditions, be ready to be admitted on probation and to take such remedial courses as may be determined by the guidance counsellor or faculty adviser.

At the Regional Agricultural Colleges, teacher trainees are admitted on the basis of a competitive entrance examination and an interview held by the superintendent of the school or his representative. In the interview, the farming experience, personality and scholastic attainment of the applicants are all taken into account.

Araneta University—which started as the first private institute of agriculture and now has a considerable research programme in this field—administers a competitive entrance examination, which itself is open only to candidates who have been certified by their school principals as belonging to the top 10 per cent of their graduating classes. The same examination also serves to select candidates for 15 full- or part-scholarships.

Santo Tomas University has special admission requirements for certain courses: for instance, minimum qualifications are accepted for admission to the bachelor of arts (A.B.) course, but in the case of the bachelor of science (B.S.) course account is taken of both the high school record and the results of an entrance examination embracing English, mathematics, biology and physics.

Silliman University requires the presentation of transcripts of secondary school records and a letter of recommendation from the school principal or counseller certifying the applicant's good character and fitness to do college work.

In the case of the University of the Philippines, it has been pointed out that:[2] 'In a certain sense, there is limited selective admission in the university because not all of those who applied were admitted. Based on the result of the placement test, a definite number of new students in the freshmen group are admitted in as much as only such number of students could be accommodated by the facilities of the university.... Fortunately or unfortunately, the university has not yet been plagued by great demands for admission because the number of insistent applicants has not significantly exceeded the capacity number fixed by the university. When this problem arises, the university would have to devise a more stringent way of selecting the students it will admit.'

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[1] Certain institutions also limit admissions to candidates of a certain faith.

[2] 'The Image of the University of the Philippines Today. A Study by the Self-Study

In 1960, 1961 and 1962 the Department of Education held examinations for high school seniors to evaluate the effectiveness of teaching in both public and private schools; and more recently some educationists have also suggested that the best point at which to attack the vicious circle of poor standards at all levels is the transition from secondary to higher education with the instrument of nation-wide, State-organized selection examinations for private as well as public high school graduates. The practical feasibility of such examinations has been established: the evaluative examinations were carried out at a relatively low cost (less than 30,000 pesos each), with a total period for preparation, administration and evaluation of no more than five months, of which about one month was required to mark and prepare reports on the examination papers. On the other hand, private education circles feel that even the evaluative tests are at least a first step toward further infringement of their remaining freedoms, and they are in general unlikely to acquiesce to such a proposal without a long-drawn-out congressional battle.

Advocating the introduction of a compulsory national entrance examination as a means of improving standards (by limiting the entry to better qualified and fewer students and obliging high schools to raise their standards if they wish to survive), Professor Gonzalez[1] pleads: 'It is not the good students in the good institutions that have created mediocrity in higher education in the Philippines, but the incompetent students in the commercialized institutions. It is the latter that should be screened. Hence in order to raise the level of higher education in the Philippines, any effective system of entrance examinations to colleges and universities should be national in scope ... it will compel in a democratic way....

'Let us, for simplicity, say that annually 100,000 graduate from high school, and that for a few years the failures every year come to about half that number, or 50,000. Where will those 50,000 go?

'Since we have opened the door to vocational-technical courses,[2] ... a good number may be attracted to vocational technology, which is very important

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Committee' p. 46 (University of the Philippines, Quezon City, February 1962, manuscript).

[1] *Fundamental Educational Reforms*, op. cit., pp. 23, 27 and 19-30.

[2] It is not clear whether Professor Gonzalez advocates this only for private or also for all public vocational schools.

for our developing country. Let us say that about 20,000 of those who cannot go to the universities and colleges are absorbed by vocational technical schools; this estimate is not without justification, since we know that usually people, if they can afford it, would like to continue studying one thing or another.[1]... What about the remaining 30,000?

'About 10,000 may find occupation. The rest or 20,000 may, let us admit it, be unemployed. Will this not add to our country's unemployment problem?

'No doubt it will, but let us not solve our country's unemployment problem by dumping incompetents into the universities and colleges.... Moreover, by allowing those 20,000 to continue, most of them will eventually end up as jobless anyway, and their presence in our universities and colleges will have caused dilution and deterioration of instruction.'

The basic case made here is undoubtedly strong, though perhaps the gate to higher vocational-technical education is being opened a little too wide; but since it will surely meet most formidable opposition, possibilities of compromise need to be borne in mind, at least as a first step to further progress. These may include anything from merely channelling applications for admission through a Department of Education clearing house[2] to some degree of government regulated[3] compulsory entrance examinations individually organized and administered by each institution of higher education. On the other hand, in so far as such action might reduce enrolments and therefore income from student fees at certain institutions, the government would also have to be prepared to provide subsidies in approved cases. Otherwise, a corresponding reduction in the educational expenditure of such institutions would start another vicious circle of falling standards. What is clearly needed is a programme of enlightened partnership between the private and the public sector which would contribute to their mutual benefit as well as to the general advancement of the nation's educational ideals and progress.

Method of study

All curricula are organized in terms of semester units assigned to weekly class hours of work in specific courses[4] through one semester—one unit for

[1] It may, however, prove far from easy either to provide that many places each year in comparatively expensive courses or to absorb the large number of additional technical graduates that would soon be pouring out: let us say, 12,000 per year at 60 per cent of the entry.

[2] This might, at least partly, be welcome to private institutions as reducing the administrative pressure of dealing with an admissions process involving many candidates who have also applied to several other institutions, including some which they will in fact subsequently enter as a matter of preference.

[3] Such private institutions of recognized standing as may eventually be declared autonomous (see p. 577) would of course be exempt from such supervision.

[4] (a) All of which are assigned titles, short descriptions, and numbers which together help both to specify a particular course and to bring out its interrelationship with other courses. (b) Each unit normally represents 16 to 17 hours of class meetings a semester.

one lecture hour or two to three hours of laboratory or other practical work. Depending on the field of study, certain courses, constituting a given number of units, are compulsory and others, bringing the number of units to a specified minimum total, may be chosen from among a wide range of electives. While a set of courses is usually interrelated in the form of a hierarchy in which preparatory or introductory courses must be completed before those more advanced can be taken, they are to a large extent also intended to be self-contained in the sense of covering a specific area of the relevant subject and of normally ending with a comprehensive examination, as well as requiring course assignments and tests, the performance in which is taken into account in awarding the final grade. This ranges from 'excellent' to failure and a variety of numerical or alphabetical/numerical techniques are used to express them and arrive at averages. For different levels, courses and scholarship requirements, certain minimum average grades must be maintained. Successful completion of a course, with a minimum grade above failure, means that the student has been given credit for the assigned units of that course.

Normally no more than a maximum load of 22 semester units is allowed for undergraduate studies and 12 to 15 for graduate studies, including the units for courses in which deficiencies have to be removed. But exceptions may be made with the permission of the Department of Education for exceptionally brilliant students (who have maintained a 'very good' to 'excellent' average), so that, for instance, the normal four-year pre-medical degree course may still be completed in a minimum of three years.[1]

All curricula (professional/vocational as well as general) in the first two years of collegiate study contain a substantial proportion of liberal arts and science courses, including a minimum of English (6 units), Spanish (12 units) and physical education: the construction of curricula in the professional fields is a complex, centralized process. In this area some controversies have arisen which, as in other matters, have not only involved educationists and professional bodies, but also congressional debate and a resort to clarification and decision by the Secretary of Justice.

In January 1957, the Board of National Education had recommended that while boards of examiners[2] might usefully act in a strong advisory capacity, full responsibility for curriculum construction should be returned to the competence of the Department of Education, in accordance with 'sound educational practice'[1] and to avoid the confusion of dual control—by the boards and by the Department. Since this position involved some conflict with previous legislation, the Secretary of State was approached for his authoritative opinion, and he ruled that: 'The board of examiners may prescribe or name the subjects or courses to be taught. But the power is left to the Department of Education to prescribe how those subjects should be taught and to systematize the courses in "the general over-all plan" of instruction. The Department of Education, also, may prescribe subjects not required by the board of examiners and deemed necessary by the school authorities to equip the student with the best possible training and experience to fit him for the profession.' This is surely a nice compromise, but the fact remains that the issue is one that should be settled through careful deliberation among educationists and eminent members of the professions, and not by legalistic manœuvres in the wider fields of politics and administration.

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[1] Section 7(b) of Republic Act No. 2382—Medical Act of 1959.

[2] Three-member boards established under the supervision of the Philippine Civil Service, with the Civil Service Commissioner as the executive officer for all, and composed of highly reputed members of the profession of at least ten years' standing appointed by the President of the Civil Service, whose basic and largely undisputed function before the Act was to set and supervise examinations that had to be passed to secure a licence to practise any of the professions. A university degree in the field entitled the holder to take this examination, but not practise.

Efforts have been made both to reduce the proliferation of courses—especially in the elective field—and to complement lectures with seminars and practical work. But in fact proliferation remains rampant, and Filipino educationists continue to point out that the *ex-cathedra* lecture unhappily still is the almost exclusive method of communication between teacher and student. Both situations are largely the result of the cost-and-profit considerations of many private institutions: if there is a sufficient number of clients for a course, it is provided; instruction in small groups is expensive in staff time, therefore no more of it is supplied than can be afforded.

Again, at the University of the Philippines, a programme of concentrated guided study was introduced under its former president, Dr. Vincente G. Sinco, who criticized the usual operation of a unit credit system as leading to a mediocre, narrow method of purchasing a diploma as it were by instalments. The new method, first tried at the College of Law in 1954, involved close contact between student and instructor, who guided the former in the completion of no more than two subjects at a time over a given period of study. No comparative data on performance in this and the conventional system of study are available, but the University of the Philippines' *President's Report, 1963,* summarily states that[2] this system 'was abolished after a careful study and upon the initiative of the various academic units'.

Medium of instruction

As noted the main medium of instruction from the third grade onward is English, and at the higher level, about the only exceptions are the use of Latin in ecclesiastical law[3] and of some Spanish in advanced language courses. It might therefore have been thought that in the Philippines there is no major problem in the use of English as a medium of instruction at the higher level. But this is evidently not so (see p. 560 for observations on illiteracy in English at the primary-school level), for considerable emphasis is given to freshman courses in the use of English in all subject fields;[1] the expression of even the most highly educated is frequently neither English nor American, local writing in English literature yet remains to emerge,[2] and there have been conjectures, admittedly without statistical justification, that in many cases students have difficulty in following lectures and textbooks.

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[1] *General Educational Policies,* op. cit., p. 6.
[2] op. cit., p. 12.
[3] Santo Tomas University even publishes this section of its catalogue in Latin.

It is unlikely that in the immediate future any attempts will be made to find a solution in the adoption of Pilipino as the medium of instruction—and this, in present circumstances, is probably wise—but educationists are fully alive to the problem[3] and both investigations and experiments on the subject are a constant feature of all research and evaluation activities of the Department of Education.

Furthermore, a considerable concensus of educational opinion is agreed that, given this problem, the universal legislative requirement of Spanish is perhaps not wise. Too much time is thereby expended on learning a new language which to most is of less than marginal interest or utility. Certainly, since all national literature and history before the Americans came, and above all, the writings of the national hero Rizal are in Spanish, students in certain subjects (e.g., the humanities and law) should normally have an adequate knowledge of Spanish, but it is doubtful whether any useful purpose is served by requiring 24 units of Spanish for such subjects as medicine:[4] '... commencing with the academic year 1960/61, 24 units Spanish shall be required pursuant to Republic Act No. 1881 as cultural, social and nationalistic studies'.[5]

Growth of institutions, enrolments and graduate outputs

Following the very rapid growth in the immediate post-war decade, the stress has—apart from a continuing increase in the number of collegiate public schools (p. 571 and Table 6)—been more on expanding existing institutions

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[1] Interestingly enough the situation is not very different in the United States. It is quite possible that, apart from the problems of using a foreign language adequately, there is an inherited language-teaching deficiency.

[2] There is, for instance, nothing to compare with what has come out in India with its extremely difficult linguistic problem and English used as a main medium of instruction only at the highest level of education.

[3] A degree course in Pilipino was, for the first time, introduced at the University of the Philippines in 1964.

[4] Science and technology can apparently still escape with no more than 12.

[5] The Act in question specifically states: '... all students shall be required to complete 12 units, at least, in the said subject (i.e., Spanish): *Provided, however,* that in the courses of law, commerce, liberal arts, foreign service and education, the students shall be required to complete at least 24 units . . .'.

TABLE 6. Enrolments and graduates in higher education, 1954/55 to 1962/63. (a) State and public universities and colleges; (b) collegiate public schools;

Year	(a) State universities and colleges				(b) Collegiate public schools			
	No.	Enrolments	Graduates		No.	Enrolments	Fourth-year enrolments	Estimated graduates
			First degree[1]	Post-graduate[2]				
1954/55	6	20 444	...	...	...	5 856	375	343
1955/56	7	24 613	2 667	126	29	6 670	611	580
1956/57	7	25 873	3 352	122	...	7 126	740	688
1957/58	8	27 248	3 593	113	...	7 547	622	560
1958/59	8	28 929	4 334	132	...	6 930	767	721
1959/60	8	26 216	4 428	155	42	8 414	755	725
1960/61	8	24 165	3 751	63	46[5]	9 860	884	804
1961/62	8	33 444	3 602	108	...	12 790	1 397	1 251
1962/63	9	35 481	4 463	164	...	16 489	...	

Sources: (a) *School Statistics*, 1959/60 to 1962/63, op. cit.; (b) *Statistical Bulletins*, 1960 to 1963, op. cit.; (c) *Private Schools Statistics* 1963/64, op. cit.

... Data not available; Inc. = incomplete data.

1. Includes a number of associate diplomas and other short-course graduates of the colleges. The nature of available statistics makes it impossible to arrive at a clear distinction.

than on establishing new ones. As a result of such policies, between 1954-55 and 1962/63, enrolments in the State universities and colleges increased by 75 per cent, in collegiate public schools by about 230 per cent and in private institutions by well over 100 per cent. Graduate outputs over the same period showed similar increases in the corresponding State and public sectors—about 65 and 260 per cent respectively; but in the case of the private institutions this increase has been substantially lower than the growth of their enrolments.

Tables 7 and 8 show that despite recent efforts to stress the importance of science and engineering, both enrolments and outputs continue to be concentrated in the arts subjects. Also, a significant increase in the proportion of teacher trainees has been realized at the cost of some decline in the proportions of enrolments for medicine and agriculture as well as for the arts subjects. Indeed, between 1955/56 and 1962/63, actual graduate and diploma outputs, while remaining static in the arts field, declined for science, engineering and medicine. More detailed breakdowns also indicate that very few of the science/engineering students enter upon a study of one of the basic sciences,[1]

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[1] In 1962/63 taking account of all institutions of higher education, total enrolments with mathematics, biology and physics as majors were 172, 351 and 126 respectively.

:) private universities and colleges; (d) totals for public and private institutions

ear	(c) Private universities and colleges				(d) Totals, public and private		
	No.	Enrolments	Graduates		Enrolments	Graduates	
			First degree	Post-graduate		First degree[4]	Post-graduate
954/55	356	155 569	32 840		181 869	Inc.	
955/56	351	176 574	38 107		207 857	41 480	
956/57	357	203 129	33 755		236 128	37 917	
957/58	341	216 771	31 360		251 566	35 626	
958/59	349	232 117	34 707	187	267 976	39 762	319
959/60	366	241 658	34 336	160	276 288	39 489	315
960/61	339	261 951	39 966	168	295 976	44 521	231
961/62	355	283 420	48 665	208	329 654	53 518	316
962/63	399	320 439	50 465	215	372 409	Inc.	

2. Includes post-graduate and other vocational high-level certificates.
3. Estimated on the basis of collegiate promotion percentages given in *1963 Statistical Bulletin*, op. cit., Table 22, p. 21. Does not include graduates of two-year technical, agricultural and one-year form mechanics courses.
4. Includes *estimates* of public school graduates.
5. Normal 8; agricultural 7; arts and trades 30; nautical 1.

and that a considerable number of those taking engineering courses are enrolled in vocational rather than professional courses such as industrial arts, radio mechanics and surveying.

It is also interesting to note a considerable difference of emphasis between the private and State and public institutions. The latter had by 1962/63 brought down the proportion of arts enrolments to 28 per cent and increased that of science to nearly 24 per cent; but the situation in the private sector still left the total for arts at 45 per cent. Furthermore, unlike the practice in other fields, the public sector retains major responsibility for agricultural education: in 1962/63 its output of agriculturists was nearly double that of the private sector. In contrast, for the same year the private institutions produced more than seventeen medical doctors for every one graduated by the University of the Philippines (1,779 : 102).

The over-all situation of massive and, in general, steadily increasing outputs of graduates, which according to Hunter, in most cases, quantitatively far outstrip foreseeable manpower requirements, emphasizes the special importance of qualitative advance and the need for measures to achieve a more effective balance of enrolments and outputs in different subject areas. Thus, in an attempt to pinpoint requirements for high-quality manpower,

TABLE 7. Distribution of enrolments by main fields of study, 1959/60 and 1962/63

Main field of study	1959/60						1962/63					
	State and public		Private		Total		State and public		Private		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Arts and social sciences	10 736	31.1	132 779	55.4	143 515	52.3	14 571	28.0	149 894	47.8	164 465	45.1
Science and engineering	6 977	20.2	38 833	16.2	45 810	16.7	12 445	23.9	51 187	16.3	63 632	17.3
Medicine	1 400	4.1	27 183	11.4	28 583	10.5	1 369	2.7	24 857	7.9	26 226	7.1
Agriculture and veterinary science	5 542	16.1	4 191	1.8	9 733	3.5	6 700	12.9	3 348	1.1	10 048	2.8
Teacher training	9 847	28.5	36 499	15.2	46 346	17.0	16 885	32.5	84 536	26.9	101 421	27.7
Unclassified graduate and other students	—	—	2 173	—	2 173	—	—	—	6 617	—	6 617	—
TOTAL	34 502	100.0	241 658	100.0	276 160	100.0	51 970	100.0	320 439	100.0	372 409	100.0

Notes.

(a) Enrolments in graduate, post-graduate and special courses are included, but not for private short-term special vocational courses.

(b) See notes (b) to (g) under Table 8 for an indication of the coverage of each main field of study.

(c) Percentage distributions have been calculated only for those classified under main fields. Available data on private graduate enrolments do not permit a reasonable classification of these.

TABLE 8. Graduate outputs by main fields of study, 1955/56 to 1962/63

Main field of study	1955/56			1958/59			1962/63		
	State and public	Private	Total	State and public	Private	Total	State and public	Private	Total
Arts and social sciences	1 159	21 294	22 453	1 577	19 290	20 867	1 308	21 610	22 918
Science and engineering	551	5 506	6 057	706	2 838	3 544	983	4 499	5 482
Medicine	235	6 861	7 096	220	3 720	3 940	210	5 516	5 726
Agriculture and veterinary science	627	479	1 106	1 207	249	1 456	753	398	1 151
Teacher training	134	3 967	4 101	640	8 610	9 250	1 326	18 442	19 768
Public vocational and teacher training	580	—	580	721	—	721	1 700	—	1 700
TOTAL	3 286	38 107	41 393	5 071	34 707	39 778	6 280	50 465	56 745

Sources: *School Statistics, 1962-63*, op. cit. and *Private Schools Statistics 1963/64*, op. cit.

Notes.

(a) Generally excluding masters and doctoral awards, but including a number of special and short-course diplomas and certificates. However, for 1955/56 statistics for the private sector include post-graduate awards.

(b) Arts and social sciences includes law, commerce and business administration, various types of home economics and secretarial courses, but not mathematics and statistics. No attention has been given to the fact that in many cases the degrees are entitled bachelor of science.

(c) Science and engineering includes mathematics, statistics and all types of engineering courses except agricultural engineering, but not auxiliary medical disciplines like pharmacy, optometry and public health.

(d) Medicine includes nursing, midwifery and the above-mentioned other auxiliary disciplines, but not hospital administration, which is counted under arts and social sciences.

(e) Agriculture and veterinary science also includes forestry, fishery and agricultural engineering.

(f) Teacher training includes vocational as well as arts and science teacher training, and outputs of special two- and three-year courses as well as the full four-year course.

(g) Public vocational and teacher training presents estimates of outputs for normal and vocational schools under the Bureaux of Public and of Vocational Education (see also Table 6). The estimate for 1962/63 is a very rough one, based on previous proportions of enrolments and outputs.

(h) Finally, it is also to be noted that there is some little discrepancy between the totals of subject breakdowns and totals of graduate outputs given in Table 6. This is partly due to not counting masters and doctoral awards, but partly also to the facts that some totals given in the source documents differ from the actual sum of the breakdowns. However, the variations are so small as to be insignificant for all practical purposes.

Hunter observes that his purpose is: '... not to estimate total requirements in particular sectors, nor total desirable outputs from education and training; but to give a very rough estimate of the requirements of skills of full international quality which would be desirable if the Philippines is to make a real success of its economic progress.' He accordingly proposes a total output of 5,600 high-quality graduates by 1970[1] with especial emphasis on supporting scientists, 16,000 to 20,000 high-quality post-secondary trainees (including 6,000 teachers for primary education), plus an appropriate well prepared secondary cohort for university education.

In the current absence of even basic manpower data and planning on the national level, it would serve little purpose to attempt a more detailed quantitative survey and analysis according to main fields of study. But the whole issue of the problem of quality in higher education, with special reference to national development needs and socio-cultural and research objectives, deserves particular consideration.

QUALITY IN HIGHER EDUCATION

In considering problems of quality in Philippine higher education it must be noted at the outset that all responsible educational circles, private as well as governmental, entertain a lively awareness of the crucial importance of these, are often unsparing in self-criticism and keenly interested in experiments to improve methods and raise standards. Apart from various moves to increase the total period of pre-university education from 10 to at least 11 years, the importance of combining an effective liberal education with professional training in all disciplines is widely stressed, the currently meagre post-graduate provision is generally deplored and as a consequence curricular requirements for law, medicine and veterinary science have been extended since 1960.

The five-year curriculum in medicine now normally requires four years[2] of collegiate preparatory studies in general and pre-medical disciplines. Similarly, the four-year law curriculum can be taken only after a first degree in arts or science.[3] The veterinary science curriculum has been extended to cover six years, including two years of general collegiate studies. Thus the total period of schooling, study and training for medicine comes to 19 years, for law 18 years, for veterinary science 16 years; so that at least in these fields the short duration of schooling is compensated for by the length of

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1. Including supporting scientists: agriculture 250, engineering 600, medicine 1,000, collegiate and upper secondary teachers 1,250, and others 2,500.
2. A minimum of three for exceptional students who may complete the required number of units in this shorter period of time.
3. Dr. Vincente G. Sinco, however, feels that this period of study is unnecessarily long and the total curriculum not as appropriate to proficiency in the practice of law as a better integrated and shorter curriculum could be.—*A Quest for Effective Education for Filipinos*, pp. 91-103.

collegiate studies, and it is therefore not always valid to criticize quality and standards in terms of the total duration of studies. This situation suggests at least the possibility of a similar extension of the duration of studies in certain other disciplines, especially in the sciences and engineering.

However, there are educationists who consider that the same or better results might be achieved through more intensive instruction and study in a situation where actually no more than 25 to 26 weeks are devoted to class work (i.e., excluding Saturdays and Sundays as well as other holidays). Thus Dr. Sinco, writing in 1959, argued: 'To continue this system is obviously disadvantageous, if not patently unwise. We cannot afford to leave our youth unoccupied and our school plants unused for about one-half of the year. There is a pressing need to lengthen our academic year to some 40 or 45 weeks....'[1]

To this another possibility of ensuring the availability of 'high-quality' graduates may be added: making the master's instead of the bachelor's degree the basic terminal degree and requirement for high-level appointments —a situation which has to a considerable extent developed in India, where the total period of study for a bachelor's degree in arts or science is also no more than 14 years.

Dr. Carlos P. Romulo, president of the University of the Philippines, has emphasized the importance of developing graduate studies from another point of view: 'As a consequence of the widespread popularity of collegiate education and the ubiquity of the bachelor's degree in the Philippines, our university faces the inevitable evolution to a new emphasis, that of graduate study (where we must admit we cannot say with pride that in 54 years since our university was founded, we have produced only three Ph.D.s.) and eventually, post-graduate and post-professional work.... With the pre-emption of undergraduate training by private institutions, a number of units in the university, such as pharmacy, law, engineering, and dentistry, show a relative decline in enrolment for the basic degree; they now face the need (and the opportunity) to channel their energies to advanced work and research. Private industry, similarly, now looks to them for useful research. In this direction lies the future contribution of the UP to national and world scholarship.'[2]

But while the University of the Philippines may thus offer leadership and guidance (see also pp. 596-8), it is evident that private universities also need to develop their graduate programmes and research work, if the quality of the over-all output of higher education is to be improved. In 1961/62 the number of master's and other higher degrees awarded by private and public institutions amounted to less than 0.6 per cent of the total award of nearly 54,000 degrees and diplomas (Table 6). Although recent progress in this direction has not been particularly encouraging, since the Science Act of 1958 (Republic Act No. 2067) was passed a number of agencies and bodies have been established to promote research work, especially in the sciences, in private as well as public sectors. The Act declared that the policy of the State was 'to promote scientific and technological research and development, foster invention, and utilize scientific knowledge as an effective instrument for the promotion of national progress'. In addition to providing for the creation of a National Scientific Development Board to carry out this policy, as 'the top policy-making and implementing science agency',[1] the Act also specified (in Section 3) that the government shall: 'Strengthen the educational system of the country so that the same will provide a steady source of competent scientific and technological manpower;... Furnish incentives to private and individual initiative in scientific work as a fundamental basis for the advancement of science;...' The Board itself was assigned the following main educational tasks, in addition to collaborating with the Department of Education to survey the educational system and recommend improvements[2] (Section 4 of Republic Act No. 2067): 'Encourage studies in the pure and fundamental sciences.... Develop a programme for the effective training and utilization of scientific and technological manpower;... Grant scholarships in mathematics, science, technology and science teaching to deserving citizens;...'

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[1] Vicente G. Sinco, *Education in Philippine Society*, p. 81 (Quezon City, University of the Philippines Publications Office, 1959).

[2] 'Education in a Developing Society', p. 7. An address delivered at the first formal meeting of the Faculty of Arts and Sciences, at the Arts and Sciences Theater, 16 June 1962.

Assisted by two major national scientific advisory bodies—the National Research Council of the Philippines[3] and the Science Foundation of the Philippines—the Board carries out its responsibilities through two research institutions, the National Institute of Science and Technology and the Philippine Atomic Energy Commission, and a series of divisions comprising Programming and Evaluation, Development and Assistance, Social Sciences and Humanities, International Science Relations, Administration and Legal, accounting and auditing divisions. The institute includes centres for industrial, agricultural, biological, food and nutrition and medical research, with others to be added as required when these have been consolidated. The governing body of the Board consists of eleven members, including a representative from the University of the Philippines, as well as representatives from relevant

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1. *The National Science Development Board and Higher Education*, op. cit., p. 12.
2. Also see p. 574.
3. This council was established as far back as 1934 with an independent governing body, but direct links with the University of the Philippines and its office on the campus. Until 1963, it had six disciplinary divisions, including social sciences, and aimed at surveying resources of research, encouraging and co-ordinating research, promoting co-operation and minimizing duplication, and gathering, collating and disseminating scientific information. In 1963 the council was divided into two, one for natural sciences and the other for social sciences.

institutes, councils, industrial, agricultural, educational and scientific and technological associations.

The objectives—including attention to the social sciences and humanities as well as to science and technology—and the organization are certainly well-conceived, but actual performance has obviously been curtailed by a paucity of funds. In 1962, a total of forty-five research projects supported by the NSDB included assistance for research at only two private universities, and total expenditure on all support amounted to less than 500,000 pesos. Furthermore, the authorized total expenditure of the Board, including provisions for its two research agencies, for 1962 amounted to little over one-fourth of the provision for 1961 (about 1,360,000 pesos in 1962 as against 4,705,400 pesos in 1961). Obviously such limited expenditure can do no more than give symbolic support to the impressively stated objectives. This situation is also reflected in the staffing of the National Institute of Science and Technology: in a total of 385 scientific and technological personnel in 1961, there were only 4 doctors, 22 masters and 12 medical or dental graduates, the rest were holders of bachelor's degrees (192) or lower qualifications.

More ambitious proposals of the NSDB are to establish a Philippine Science Community which will pool the top scientific manpower resources to provide direction and leadership in research, not as a deliberative body, but as 'the top research centre (based on the present National Institute of Science and Technology) for actual research work and for post-graduate training for researchers'[1] and as a body synthesizing and promoting national research efforts currently undertaken in universities, industrial laboratories and government agencies. For the more distant future, it has also been suggested that the range of the work of the Science Community should be extended so that it might become an Asian research centre through regional co-operation and participation, with different countries undertaking responsibility for specialized areas of graduate study and research for which they are best equipped in human and material resources.

In addition to the fact that graduate studies and significant research are limited to a few institutions, with a particular disregard for basic sciences, the quality of graduates in professional fields is disturbingly low by the country's own standards. While in medicine only a fraction of the private school graduates pass the professional State examination required for licence to practise, in law more definite statistics show that in recent years an average of no more than 25 per cent of the candidates passed the ten State Bar examinations,[2] and in teacher training, the 'Bureau of Public Schools records show that over 35,000 teachers, or about one of three, are not "fully qualified" for permanent appointment under civil service regulations',[3] while it has been reported that less than 50 per cent of the candidates appearing for the civil service teacher examinations pass. There is thus a clear all-round need to improve the standards of first-degree instruction, training and study, for it is clear that neither inadequacy of selection nor lenient pass criteria can be held entirely responsible for the very poor showing of candidates in the professional and civil service examinations.

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[1] ibid., p. 48.

[2] *A Quest for Effective Education for Filipinos*, op. cit., p. 90.

[3] G. Clyde Corle, 'Educational Problems in the Philippines', *Educational Quarterly*,

The University of the Philippines—which in 1963/64 had a collegiate enrolment of about 16,000 and staff numbering 1,369 full-time and 187 part-time teachers—has made impressive efforts not only to improve its own performance but to influence standards throughout the nation. But one or two institutions cannot effectively stimulate, guide and assist the qualitative progress of hundreds of others. To seize the great opportunity for qualitative advance, both the Philippine Association of Colleges and Universities and the denominational inter-university bodies will need to develop more effective means of influencing institutions and promoting constructive co-operation between them.

In the words of President Carlos P. Romulu, 'the UP also has the obligation to provide quality education as a model for the other institutions to emulate'.[1] In 1963/64, it had achieved a teacher/student ratio of 1 : 12, substantially increased expenditure for research[2] and its different divisions not only covered all major disciplines, but also provided for a network of strategic branches and affiliation schemes with private non-profit institutions to influence educational development on a truly national scale.

Apart from the usual divisions including research centres for natural science, social science and industrial research, the university includes a College of Architecture and Fine Arts, with distinguished artists and sculptors among its teaching staff; the Institute of Asian Studies; a Conservatory of Music, with staff maintaining a high standard of public performance; an Extension Division in Manila, offering the working student special study facilities; the Colleges of Agriculture and of Forestry in Los Baños, with important extension functions and associating itself with the work of the International Rice Institute established with assistance (about $10 million) from the Ford Foundation in 1960 on the Los Baños Campus; branch colleges in Baguio and in Tarlac (opened in 1964) with instruction up to the junior level (second year of college); the Iloilo branch college in the Visayas, which has been authorized to develop full four-year degree courses in various fields; a unit of the College of Business Administration in Cebu, opened in 1963 and offering graduate programmes; the Clark Air Base Branch, which offers arts and social science courses of further study opportunities mainly for employees of the base; the Agricultural Credit and Co-operatives

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Vol. IX, No. 3, January 1962, p. 24 (University of the Philippines, Graduate College of Education).

[1] 'Education in a Developing Society', op. cit., p. 7.

[2] Fourfold between 1959 and 1963.

Institute (ACCI), which conducts training courses, workshops and seminars for prospective employees and specific types of personnel of agricultural credit institutions and co-operative organizations, as well as assisting the university in developing curricula on credit and co-operatives; the Institute of Economic Development and Research, which is primarily a research body, but which also organizes courses of lectures in economic planning and development for and in co-operation with the university's Department of Education; the UP Asian Labor Education Center (ALEC), which carries out research in labour relations and provides training courses for trade-union leaders not only from within the country, but also from other Asian countries, through international arrangements; the UP Statistical Training Center, which has an extension (covering training of suitable employees of various government bureaux), as well as research programmes, including the participation of staff in nation-wide demographic and economic surveys;[1] a Community Development Research Council, undertaking researches, both in the basic problems of social disciplines and in the applied or practical problems of community development; a physics teachers' training programme in the College of Engineering; in-service training by the Institute of Hygiene for employees of different agencies engaged in public health, and educational radio broadcasts.

Moreover, in 1959/60 the university's Board of Regents appointed the vice-president for academic affairs concurrently as co-ordinator of research, and an Office of Research Co-ordination was set up with the assistance of the National Economic Council and the International Co-operation Administration. The Office accepts all research project proposals submitted by university teachers and channels them either to the Social Science Research Center or to the Natural Science Research Center for consideration. It acts as a clearing house and administers the research funds of the university. As an administrative unit, in addition to keeping research records, following up progress of current research and, where relevant, compiling papers or results and offering services to researchers, the Office also keeps the public informed about researches undertaken at the university. In 1963, the university established a sister Office of Institutional Research which, together with both an Office of Co-ordination and Research Councils, will look into the systematic programming and development of research talent in the university.[2]

In opening branches in several places, the Philippine University Self-Study Committee announces:[3] '. . . the UP president, as authorized by the Board of Regents, has been looking for ways and means of reopening the Cebu College, which was closed for lack of appropriation in 1950 after having existed since July 1918. Under the same authority, President Sinco has established a college in Baguio City, providing it with a substantial building for classrooms, offices, library, and faculty quarters.... The principal factor in opening a UP branch anywhere in the country is the willingness of the National Government to support such a project and the enthusiasm of the people in the region where such a branch is to be established, provided private interests shall not place formidable obstacles.'

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[1] This makes the acute shortage of educational statisticians noted before (p. 555) even more surprising.

[2] *President's Report, 1963*, op. cit., p. 19.

[3] 'The Image of the University of the Philippines Today', op. cit., p. 81.

Statistical data on the affiliation functions of the university are not available—and it is not possible to set aside the presumption that, despite the extensive intention of the principle, its practice is rather limited.

Within the university itself, it has been admitted by its president[1] that the productivity of the graduate and research programmes has been far from impressive. The goals have been stated well and clearly enough; it remains to find ways to put them into effective practice. The problem of inadequate finance is just as evident today as at the time of the foundation of the University of Mindanao: 'Whatever may be the extraneous justification, the survey group can see no educational validity for the establishment at this time of a comprehensive university at Mindanao when the present University of the Philippines is being financed in such an inadequate manner.'[2]

This situation is of course to be found not only in the Philippines but in all countries with limited resources. Experts within the country are able to plan educational strategy and allot priorities, and indeed their basic recommendations are appropriately endorsed by relevant organs and authorities of State, but what only too often follows is that the implementation of such policies is subject to radical change to satisfy political ends.

Both the possibility and nature of the contribution of institutions in the private sector towards the maintenance and improvement of standards is illustrated by the programmes and objectives of three institutions: the oldest university in the region, Santo Tomas; Araneta University, which was the first private institution providing for higher education and research in agriculture; and the largest non-denominational institution of higher education, Far Eastern University. The projection of the standards of these and similarly motivated institutions could well establish a series of bilateral or multilaterally organized links to assist sister institutions to achieve and maintain something of their own standards of graduate and research work.

The University of Santo Tomas offers doctoral as well as master's degree courses in all basic sciences as well as in arts and the social sciences. In maintaining a high standard for the fulfilment of requirements in all these fields, the university stipulates that a certain minimum of studies shall be devoted to cultural subjects: since 1963/64 at least six units for the master's course and nine for the doctorate.

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[1] 'Education in a Developing Society', op. cit., p. 7.

[2] *A Study of the University of the Philippines*, by Dr. John A. Hannah (president of Michigan State University and chairman of the Survey Team), *et al*, p. 11 (Quezon City, University of the Philippines, 1958).

Araneta University describes itself as 'a team of institutes with a multiple patriotic mission'.[1] The institution, in emphasizing its research responsibilities in agriculture, also considers that the social sciences must be given parallel importance and has accordingly set up an Institute of Economic Studies and Social Action. It is the first educational institution in the Philippines to establish an isotopes laboratory, and together with Feati University (concentrating on technology), has organized a co-operative programme with Feati Industries, adjoining its campus, to provide suitable in-training education, partial employment for its students and attractive industrial openings for its graduates. Together with its objectives of high standards and nationally significant research in agriculture and technology, the university 'realizing that the Filipinos belong to the Malay race . . . aims to become the centre of Malay culture and friendship in the Philippines'.[2]

Until recently the Far Eastern University (which in 1963/64 had a record enrolment of nearly 48,000 students) provided courses leading no further than master's degrees in arts and science subjects; but in 1961 it founded a 'Research Centre': 'It is hoped that this centre will have eventually a research director who will co-ordinate and supervise departmentalized research projects under respective faculty members as project directors. Selected graduate students will be taken in as research assistants. The fields of research are marked out as follows: law; history and political science; economics, business, finance and management including labour; education; psychology; sociology and community development; physical sciences; and English, philosophy and letters. . . . Research will be both academic and functional—functional in the sense that the centre will maintain contact with the government, with civic and social organizations, as well as the business world with the view to undertaking researches as may be needed by these institutions.'[3]

It is interesting to note that, while this listing of research fields is impressively comprehensive, it stops short of high-level research in science and technology.

STUDENTS

No nation-wide survey of the socio-economic origins of students has been carried out, but a study made available to the Hannah survey group,[4] while covering only women students at the University of the Philippines, suggested that a major proportion of students comes from the upper-income groups. '. . . in 1956/57, over 43 per cent of the fathers of women students belonged to the professional and managerial groups, and but 2.5 per cent to the skilled, semi-skilled, and unskilled group.... There would seem to be two implications here; first, an expanded scholarship programme is called for; and, second, a co-operative effort with the secondary schools should be made to raise the educational aspirations of able youth from the less privileged social and economic groups.'

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[1] *Bulletin of Information 1963-64, Araneta University*, Rizal, p. 5.

[2] ibid., p. 9.

[3] *Bulletin of Information, The Institute of Graduate Studies, Far Eastern University*, Vol. III, June 1961, p. 12.

[4] *A Study of the University of the Philippines*, op. cit., p. 28.

In 1959/60 it was also found that most of the students admitted to the University of the Philippines came from areas near the university or its branches and that: 'The geographical factor obviously gives private universities an advantage over the University of the Philippines in attracting graduates from the high school.... Poor parents who wish to send their children to college naturally will take any opportunity offered in a nearby university.'[1] And indeed there are numerous indications that students whose families cannot afford to support them fully through their studies, work during the day and attend evening classes at private colleges and universities: it is said that most of some 10,000 law students belong to this category,[2] and that of the total student body about 60 per cent work full- or part-time.

Most universities provide scholarships, loan funds, part-time work opportunities and graduate fellowships, which involve some teaching responsibilities; but the number of these is very small, and only very few of the best and/or economically most deserving students can be assisted. Even the two State universities furnish only a very limited number of scholarships, and remit fees in comparatively few cases. The University of the Philippines had in 1963 hoped to initiate a scholarship fund of 1 million pesos to provide 500 scholarships, of which 100 were to be reserved for full-time graduate students, to be awarded on the basis of academic qualifications and financial need. However, Congress did not sanction the required appropriations, and even the establishment of a National Council on State Scholarships was viewed with some concern by the university as possibly injuring its own national scholarships programme.[3] In fact, during 1963/64, financial assistance in the form of scholarships amounted to P586,000 (including private donations), of assistantships and part-time work to P180,000 and of a loan fund to P84,000. At Mindanao University, 150 full and another 150 partial scholarships were awarded in 1963 to students selected on the basis of scholarship examinations open only to students who had stood among the top 5 per cent of the graduating classes of their high schools. The full scholarships provide exemption from all university fees, free textbooks and instructional materials loaned to students up to an amount of P150, board and lodging equivalent to P60 per month during the academic year and actual transportation expenses not exceeding P50 for travel between home and university at the opening and closing of the academic year. Partial scholarships, with the exception of the board and lodging stipend, offer the same benefits. A partial scholarship holder is given a full scholarship if at the end of the first semester he has maintained an average grade of 1.5 or higher (the highest is 1, denoting marked excellence). Finally, entrance scholarships, in the form of remission of tuition fees, are offered to leading students of public or recognized private high schools (a practice also followed by several private universities).

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[1] *President's Report, 1959-60*, p. 19 (University of the Philippines, Quezon City).
[2] *A Quest for Effective Education for Filipinos*, op. cit., p. 90.
[3] *University of the Philippines, Annual Report, 1964*, p. 9.

By Asian standards, average annual expenses for undergraduates, though varying, are fairly high. The average for the University of the Philippines in 1962/63 was estimated at P1,500 per year: tuition and other fees P300, books and supplies P400, room and board P800. The burden entailed by the higher education of just one child for even the upper middle-income group may be gathered from the fact that the top salary of an assistant professor during the same year was about P6,000: it would take well over 25 per cent of his income to maintain one child at the university if clothing and other miscellaneous expenditures are taken into account. In these circumstances the large number of students who do enrol in higher education without financial assistance bears considerable testimony to student enterprise, even if it is spurred more by socio-economic considerations than a disinterested thirst for knowledge.

Another difficulty faced by many students is finding adequate accommodation at reasonable prices, especially in Manila and Quezon City, where about 70 to 75 per cent of the total student population of the country is concentrated. With the exception of the State and public institutions, only a very few colleges and universities provide any residential facilities for a bare minority of students. Others often have to pay exorbitant rents for unhygienic and overcrowded lodging facilities in commercial boarding houses. The University of the Philippines, which is fully aware of the problem and is trying to expand its residential facilities, in 1963/64 could offer accommodation to no more than 937 men and 941 women students in six hostels, three for each sex, i.e., to less than 12 per cent of its total collegiate enrolment.[1] In addition, however, nearly 900 students stayed with campus residents either without charge or as paying guests. Various religious bodies, including the denominational inter-university bodies, also operate some hostels for students and working youth, but it would seem that individual private institutions of higher education could also give some assistance in helping to organize self-supporting co-operative or university-supervised commercial boarding houses. Thus Silliman University, at Damaguete City, the capital of Negros Oriental Province in the Central Visayas, provides a number of co-operative university lodgings. These are maintained for students of very modest means, offering only essential facilities and requiring students to share responsibilities for housework and house management under the guidance of an adviser. The cost of food and lodging amounts to no more than P26 per month as against the normal monthly hostel cost of P60 or more.

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[1] It is, however, also interesting to note that in this year no fewer than 128 available places in the men's hostels remained unoccupied. It may be that there is, despite all difficulties, a strong preference among men students for making their own living arrangements. Clearly a survey would be necessary before any large and expensive expansion is undertaken: this might well be carried out by a committee appointed in 1964 to study problems of student housing.

Student guidance and health

Most major institutions of higher education place considerable importance on student guidance and counselling services and provide a more or less comprehensive health service, which in the case of the University of the Philippines and the Far Eastern University includes fully equipped and staffed university hospitals. Organized sports however, are in many cases neglected, owing to the scarcity of playing fields in overcrowded Manila. Student counselling has not escaped serious criticism in the recent past. The best of these services is in principle intended to cover all phases, from advice at entry on the selection of courses, through guidance in meeting intellectual and emotional difficulties during the full period of tuition at a college or university, to assistance in placement after graduation. But, while the Hannah survey group[1] 'was unable to determine with certainty' the causes of a university drop-out rate of 40 to 50 per cent and a prolongation of minimum study periods among 68 per cent of those who do graduate, it felt that, apart from alleged inadequate secondary school preparation and low admission standards, there were also 'indications that the programme of academic counselling is far from adequate. It is most desirable that this matter receive continuing study'.[2]

Similar doubts surely apply to the efficacy of less well staffed counselling services of private universities, and Dr. Virgilio de los Santos, vice-president of the University of Manila, has suggested that: 'Failure in student organizations can be attributed in a large measure to lack of skilful guidance on the part of advisers.'[3] He goes on to advise that: 'Operating on democratic lines, a teacher—whether in the classroom or in a student organization—must act both as adviser and friend.... The problem which the faculty faces is one of counselling and co-operation without dominating and inhibiting the student. As one teacher has pointed out, it will do well if the adviser adopt an attitude of "understanding without intrusiveness; sympathy without softness or hardness, leadership without autocracy and intimacy of association, while maintaining full responsibility of student officers". The adviser must inject higher educational standards into the activity. He must learn to advise enough, but not too much.'[4]

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1. *A Study of the University of the Philippines*, op. cit., p. 29.
2. ibid.
3. 'Problems of Student Organization', *Proceedings in Private Education, its Contributions and its Problems*, op. cit., p. 35.
4. ibid., pp. 35-6.

President Romulo more recently also emphasized that in 1963: 'For the students there was greater breadth of freedom in the expression of their ideas. There was correspondingly greater responsibility. If I erred in this policy, it was toward giving more freedom to the students, not less. For the first time in our memory, pre-censorship in the *Philippine Collegian* was abolished....

'The Student Council, which was abolished in recent years, was revived. Student government was considerably strengthened, with a corresponding increase in student initiative and responsibility.'[1]

Student activities

Similar student councils or other student government bodies and cultural or academic student associations are encouraged at most universities, and in certain cases the administration assists them by collecting student activity fees, distributing the proceeds between them according to established criteria. At the national level, however, there is considerable duplication, and, more unfortunate, destructive rivalry between a multiplicity of different types of voluntary national student organizations. In addition to a National Union of Students (NUS), there are, apart from smaller politically oriented bodies or splinter groups, the Students Councils' Association of the Philippines (SCAP), Conference Delegates Association (CONDA), the Student Catholic Action (SCA), the Student Christian Movement (SCM) and the Muslim Students Association. However, in 1961 co-operation between some of these bodies led to the establishment of the Institute of Student Affairs (ISA) which has subsequently done much to promote responsible thinking and action in relation to student welfare problems by initiating studies of student living conditions, the organization of leadership training seminars, establishment of book exchanges and financial and technical assistance to member student organizations.

Again at the institutional level, some universities give special encouragement to the development of student co-operative enterprise in the management of cafeterias, textbook stationery and general stores. The University of Santo Tomas (UST) provides a particularly impressive example of such co-operative action: organized by university students, led by the Central Board of Students, the UST Co-operative maintains several services including a university restaurant, with several branches, and a co-operative store, one of whose principal functions is to provide textbooks and supplies at reasonable prices.

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[1] *The President's Report, 1963,* op. cit., p. 14.

STAFFING

No breakdown on teaching staff by subject fields is available, but teacher/student ratios at different types of higher education institutions show interesting variations. Whereas the State universities and colleges in 1962/63 had an over-all teacher/student ratio of 1 : 12, the private universities and colleges showed nearly double the number of students to each teacher. Moreover, about 40 per cent of the private institutions' staff are part-time as opposed to about 12 per cent at the University of the Philippines. When to this situation is added the fact that averages[1] for both qualifications and salaries of privately employed teachers are lower than at the State institutions, a major reason for difficulties of maintaining standards in the private sector becomes apparent. However, the public teacher-training and vocational colleges appear to be beginning to encounter similar problems: in 1955/56 their teacher/student ratio was 1 : 13, but by 1961/62 this had fallen to 1 : 23: the number of teachers had increased from 529 to only 556,[2] while enrolments had risen from 6,670 to 12,790.

On the question of qualifications for staff, although regulations for private institutions recommend the following ranking and qualifications for staff, a glance through bulletins and catalogues shows that a substantial number of the staff, including higher ranks, in many universities hold no more than a bachelor's degree.[3] The ranking and academic qualifications recommended —to which criteria of experience, efficiency, productive scholarship, character and personality are added—are:

Professor: doctor's degree preferred; master's degree minimum; experience of ten or more years in teaching, education or eminence in a specialized profession.

Associate professor: doctor's degree preferred; master's degree minimum; experience of five to ten years.

Assistant professor: master's degree minimum; three to five years of experience related to educational work.

Instructor: master's degree preferred; bachelor's degree minimum;[4] experience of one to three years.

To facilitate the observance of these minimum requirements and to assure better standards for the teaching staff of private institutions, a bill was placed before Congress in 1964 (H.B. No. 5822) 'to provide for the minimum wage and security of tenure of teaching personnel, as well as employees, of private schools, colleges or universities, and to regulate the relations between the proprietorship or management and such private school personnel'. It predicates that teachers and professors are 'entitled to receive a minimum compensation not lower than the current salary rates for the corresponding positions in the national government'. Some educationists in the private sector have questioned the wisdom of this bill in terms of its lack of differentiation between part- and full-time staff, of ambiguity on the meaning of 'corresponding positions', of interference with the freedom of contract and of an implication that private schools may be forced to conform to standards set arbitrarily by the University of the Philippines. But these are surely minor points which could be easily smoothed out through appropriate consultations, including adequate representation from private institutions.

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[1] Of course, conditions in private institutions vary considerably.

[2] These figures are taken from *School Statistics 1962-63*, op. cit., Table 5; the *1962 Statistical Bulletin*, op. cit., Table 35, gives slightly different figures: 467 and 567.

[3] Even at the University of the Philippines, in 1962/63, over 48 per cent of the teaching staff held no more than a first degree, including 1.6 per cent who had no degrees, and only 14 per cent held a doctorate.

[4] Holders of no more than the minimum qualification are supposed to teach only junior college subjects, largely in their major field (*Manual of Information for Private Schools*, op. cit., p. 28); but in fact it is not infrequent to find a senior teacher with no higher academic qualification.

More important is the fact that means must be found to establish a satisfactory scale of remuneration and attractive working conditions and facilities if higher education is not to continue losing some of its best teachers to commercial enterprises, which as a rule offer their junior executives not only higher salaries, but also better security and fairer prospects. A recent PACU Conference[1]—called after the first teacher strike at a reputable institution of higher education had taken place—recognizing this problem, also emphasized the need for better relations between teachers and administration and for adequate opportunities of teacher participation in the formulation of broad policy as well as in decisions on academic matters. A committee appointed by the conference to study the question also had before it a specific proposal, that teachers might be enabled to acquire stocks of college and university corporations so that they and the owners 'become, as it were, partners in a common enterprise and thus remove the suspicions that now exist and which may mar an otherwise symbiotic relation'.[2]

While efforts to improve the standing of teachers at private institutions are thus afoot, President Carlos P. Romulo in 1963 graphically pointed out[3] that salary levels at his university were about one-third of those at the University of Malaya,[4] and promised that they would be raised by 15 per cent in the following year, and that further annual increases were planned, so that by 1967/68, salaries would have risen by 40 to 100 per cent at different levels. By 1964, the first increase had been realized and, apart from improving promotional arrangements and accommodation facilities for staff, greater support was being given to enable teachers to engage in research. Reduction in teaching loads for approved research workers had been followed up by

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[1] *Proceedings of the Third Biennial Educational Conference, Theme:* Administration-Faculty Relations, op. cit.

[2] ibid., p. 13.

[3] *The President's Report, 1963,* op. cit., p. 16.

[4] The comparison is not absolute and is a striking debating point rather than a specific indication.

TABLE 9. Teaching ranks and annual salary scales at the University of the Philippines (in dollars)[1]

Rank	1962/63 (actual salaries)		1967/68 (targets)		Ratio of 1962/63 salaries to 1962 *per capita* income[2]	
	Min.	Max.	Min.	Max.	Min.	Max.
Instructor	875	1 150	1 300	1 700	1 : 7	1 : 9
Assistant professor	1 250	1 525	1 875	2 300	1 : 10	1 : 12
Associate professor	1 650	1 875	2 500	3 000	1 : 13	1 : 14
Professor	2 050	2 475	3 750	4 500	1 : 16	1 : 19
University professor	2 550	3 000	5 000	6 000	1 : 20	1 : 23

1. U.S.$1 = P4.
2. *Per capita* GNP in 1962 = 512 pesos at current price (*Central Bank of the Philippines, sixteenth Annual Report, 1964*).

facilitating publication of their work through a coherent publication programme, and the groundwork had been laid for the creation of a University of the Philippines Press which would publish and distribute scholarly, scientific and literary works under the university's imprint. Finally, with the assistance of various foundations and the Colombo Plan programme, a record number of 125 teachers were working for a doctorate, 119 of them abroad.

Actual 1962/63 salary scales and targets for 1967/68 are indicated in Table 9.

In view of these current low salaries which are nevertheless, in general, higher than at private institutions it is not surprising that full- as well as part-time teachers assume a considerable load of remunerative responsibilities outside their institutions. These activities may include anything from part-time teaching at other institutions to professional practice or business and, with an overload of teaching responsibilities[1] and inadequate facilities, hinder both research work and more personal contact between teacher and student.

EXTENSION AND EXTRA-MURAL WORK

Extension work is widespread in the Philippines, particularly in the form of evening classes, special vocational courses, correspondence teaching and, in the case of the University of the Philippines, branch centres of education, summer courses and agricultural extension.[1] Although student participation in such organized institutional activities is rather limited, the trend is towards an expansion of these responsibilities, and there is great promise of increasing effectiveness, if the standards of private school programmes for working youth and adults could be raised.

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[1] Although the Department of Education specifies that: (a) a full-time college instructor must carry a teaching load of at least 15 hours per week; (b) not more than 24 hours per week if he has no other outside employment; (c) a maximum of 12 hours per week if he is a full-time employee outside of his college teaching; and (d) 'the maximum load of part-time employees should be arranged in inverse proportion to the amount of time they spend in their outside employment'.—*Manual of Information for Private Schools*, op. cit., p. 30.

Until the establishment of the Government Office of Adult Education in 1937 (which in 1947 was transformed into the Division of Adult Education), the University of the Philippines played a leading role in adult education through its President's Committee on Literacy and Civic Education, set up in 1935. One of its first projects was to organize its alumni into a corps of volunteer workers who undertook 'several phases of adult education work during the summer vacation. By the end of the 1935 summer vacation 300 alumni taught more than a thousand adults how to read and write in their respective homes'.[2] In March 1936 the university started the first extension class, offering four-month courses for adults, which, in addition to reading, writing, citizenship education and current events, included lectures on common occupations by invited part-time lecturers. Towards the end of the year the programme had been broadened to offer such specialized courses as shop work for men and dress-making, flower arrangement, knitting and painting for women. While this type of activity was later taken over by the Adult Education Officer, private colleges and universities continue to attract a large number of adults to their evening classes and special courses, and the University of the Philippines has developed its extension work in other areas. In 1951 it created a fully-fledged Extension Division in Manila, which has since offered evening classes to accommodate working students. Three years later a Labor Education Center was set up as a pilot educational centre for workers, union officers and members, which has developed into a permanent Labor-Management Asian Labor-Education Center, with the assistance of USAID, the University of Connecticut and the National Economic Council. In 1962 the Office of Executive Vice-President for Extra-Mural Studies was created and a department for such studies organized to 'take charge of extension classes of the university in places where the university does not have established branches[3] and in other sites that the president may designate'.[4] Courses are mostly of the same type as those offered within the university, covering both undergraduate and graduate levels, and studies are: '...conducted by professors of the university who are detailed to those places where the studies are conducted. After meeting the students for a brief period where explanation of course is given and the reading assignments are issued, the students are left to study and read by themselves for a determined period, after which the professor returns to assess the acquired knowledge of the students.... For work equivalent to those performed by the students on the campus, these extra-mural students earn equivalent credits on similar subjects'.[1]

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[1] The University Radio (DZUP), set up in 1958, also offers educational and information programmes; and in May 1961, the National Science Development Board organized the Philippines' first television college course for credits, comprising 28 lessons in introductory physics. The cost of operating the programme, amounting to about 10,000 pesos ($2,500) was largely met through fees charged to participating universities and colleges.

[2] *Leadership Training for Community Education*, p. 15 (Manila, Republic of the Philippines Bureau of Public Schools, Division of Adult Education, 1957).

[3] By 1964 five such branches were operating at Manila, Baguio City, Clark Air Base, Iloilo and Tarlac, and plans had been made to re-open the pre-war branch at Cebu.

[4] (a) *Revised Code of the University of the Philippines*, Art. 121, p. 32 (Quezon City,

Expenditure on over-all 'extension and community services and others' formed no less than 23.21 per cent of the total university expenditure in 1963 and was then planned to rise to 25 per cent in the following five years[2] (but the 1964 annual report makes no specific mention of such expenditure). The 1963 report goes on to point out that a new concept in community service was introduced in 1963 when undergraduate medical and nursing students successfully rendered free rural services during vacations while: 'The College of Agriculture carried on its usual extension work through the Department of Agricultural Information and Communications and the Farm and Home Development Office. Through field trips, demonstrations, and meetings, the agricultural trainees reached the farmers of Laguna and Batangas; through radio programmes and the printed media, the college reached many thousands more.... In addition, the university faculty rendered the usual assistance to various government offices in the form of resource persons, consultations, and technical advice.'[3]

In the same year, the Philippines' National Union of Students also organized its first work camp (although similar projects had previously been undertaken sporadically by various student groups). From several Manila colleges and universities, twenty-five volunteer students took part in a ten-day multi-purpose work camp at a barrio situated near Manila. The group included students of agriculture, food technology and nutrition, medicine and education. Their stated aims were 'to study and experience the life of the barrio, to communicate with them [the villagers] the knowledge and training they respectively received in their courses of study, and to work in manual labour with them in a commonly-agreed project'.[4] The work centred around advice and discussion on animal husbandry, agriculture and sanitation;

University of the Philippines Press, 1961). (b) In 1963 credit courses, including instruction by correspondence, had, in addition to those of branches, been conducted at fifteen centres throughout the country.

1. 'The Image of the University of the Philippines Today', op. cit., pp. 82-3.
2. *The President's Report, 1963*, op. cit., p. 31.
3. ibid., p. 30.
4. *Economic Development and Community Development* (a collection of articles compiled by COSEC for the Third Asian Regional Cooperation Seminar, an event of the International Student Conference), p. 363 (Kuala Lumpur, February 1964).

planting a vegetable and fruit garden for the barrio school, and laying out a basketball court for the barrio youth.

In 1963/64 the University of the Philippines further strengthened the extension work of the Los Baños Center (Agricultural College and College of Forestry) by giving the administrative officers there such management authority as they might require and by acquiring, through special legislation (Republic Act No. 3523), the 4,000-hectare area of the Makiling National Park for the College of Forestry. The Act authorizes the college to develop appropriate portions of Makiling into a botanical garden, experimental and demonstration forest 'for purposes of carrying on research in the protection and multiple-use management of forest land, strengthening professional education in forestry and related fields and demonstrating to the public the methods and results of applied forestry'. It further expects the college to act as a principal agency for conducting and co-ordinating a nation-wide forestry information and education programme. To provide funds for these programmes, the law requires the collection of 10 centavos ($0.25) per cubic metre of timber cut from public forests for commercial purposes, which it is estimated will come to an annual total of 300,000 to 500,000 pesos ($75,000 to $125,000).[1]

Private institutions of higher education, apart from their classes and courses for working youth and adults, in a number of cases also carry out research and professional consultation for private industry and business on a contractual basis. However, among these institutions, apparently only Araneta University has a substantial agricultural extension programme, since 1963/64 undertaken by a newly created Institute of Education and Extension.

Finally, the University of the Philippines has also been operating a training programme for community development workers at the College of Agriculture and a Community Development Research Council (CDRC) as a joint project of the university and the Presidential Assistant on Community Development, under the sponsorship of the National Economic Council and the International Co-operation Administration. The training centre, in addition to providing six-month courses for community development workers—turning out 300 trainees in 1959—has also conducted orientation schools for mayors and technical agency personnel at the municipal level. The CDRC is composed of professors from different social science disciplines of the university and is headed by a project director. Its objectives are: '... (1) to undertake basic researches in the social sciences in order to provide the Presidential Assistant on Community Development (PACD) with workable guidelines for the effective implementation of the community development programme, and (2) to undertake a direct evaluation of the manner in which the PACD implements the government's programme on community development. In

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[1] *University of the Philippines, Annual Report, 1964,* op. cit., p. 33.

TABLE 10. Philippine Colombo Plan trainees abroad: new places secured between 1950 and 1962

Country of training	1950-58	1958-61	1961/62
Australia	100	132	39
Canada	—	51	8
Ceylon	1	5	—
India	40	54	18
Japan	9	53	17
New Zealand	3	7	10
Pakistan	3	3	—
United Kingdom	101	113	43
United States[1]	—	889	158
TOTAL	257	1 307	293

Field of study	1960/61	1961/62
Arts and social science	241	115
(Administration)	(88)	(39)[2]
Science and engineering	135	81
Medicine	49	19
Agriculture	122	78
TOTAL	547	293

Source: *Technical Co-operation under the Colombo Plan*, report by the Colombo Plan Council for Technical Co-operation in South and South-East Asia for the year 1 July 1961 to 30 June 1962 (Colombo Plan Bureau, October 1962).

1. United States figures not included for 1950-58, as the country joined the Council in 1958/59.
2. Given separately because of special significance.

addition the CDRC gives the university an opportunity to develop and encourage social science research, to train competent individuals in research, and, possibly, to enrich its curriculum with indigenous research findings'.[1]

STUDY ABROAD

In relation to the total student body, the Philippines has had considerably fewer students abroad than all other South-East Asian countries; most of the students have gone to the United States, and, so far as Colombo Plan trainees are concerned, a significant emphasis has been placed on 'food, agriculture and forestry' and on administration.

In view of the concentration of Philippine students in the United States —1,805 out of some 2,000 in 1959/60—the following breakdown of this by major fields of study has been extracted from the records of the Institute of International Education: agriculture, 40 students; business administration, 210; education, 165; engineering, 128; humanities, 357; medicine, 300; natural science, 159; social science, 306; others, 140; total, 1,805.

Training facilities secured through the Colombo Plan (which include very short courses as well as those which cannot be properly considered to fall in the category of higher education) as distributed by country of training and by subject area are as shown in Table 10.

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[1] *The President's Report, 1959-60*, op. cit., p. 58.

In these awards, apart from a considerable concentration on medicine, the main emphasis appears to be on arts and social sciences; and while figures for science and engineering are on the low side, science at least compares favourably with engineering.

EDUCATIONAL DEVELOPMENT OBJECTIVES AND FINANCE

The Bureau of Public Schools and the Bureau of Vocational Education have together prepared a long-term over-all plan to co-ordinate with economic and social development guidelines furnished by the National Economic Council and the Programme Implementation Agency, but only an indication of the broad objectives of this are available. Because of the nature of its relationship to the institutions under its supervision, the Bureau of Private Schools has found it difficult to formulate an educational plan; but in 1965 attempts were 'being made to formulate a long-term plan particularly on secondary and higher education'.[1]

The targets for public elementary education to be reached by 1980 are: to ensure six years of compulsory elementary education and encourage the opening of grade 7; to accommodate, gradually and as far as possible, 90 per cent of the children of the entrance age of 7 years by 1980, and reduce the number of over-age children; to find ways and means of increasing the holding power of the schools within the target period; to carry out the twenty-year building programme passed by Congress (Republic Act No. 4171) to solve acute accommodation problems; to improve the quality as well as increase the quantity of education; to reduce the class size to no more than 40 and the supervisor/teacher ratio to 1 : 100; to make every effort to provide every pupil with the necessary textbooks.

The objectives of public secondary education are enumerated in very general terms as: continuation of the integrative function of elementary education by providing general education and discovering the varying abilities, interests and aptitudes of youth; cultivation of vocational efficiency which will help the students become effective members of their family and community; improving the quality of instruction, since it is the 'weakest link' in the Philippine educational system; striving for a more stable financing programme through better participation of local governments in addition to aid from the central government; encouraging more attendance in vocational/technical schools and gearing the courses of these and other secondary schools to the socio-economic goals of the country.

Aims for the development of teacher education are given as: gradual

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[1] *Progress Report, Educational Planning in the Philippines, 1962-65*, op. cit., p. 4.

Table 11. Public educational expenditures as percentages of GNP and total national expenditures, selected years, 1954/55 to 1964/65

Year	GNP[1] (million pesos)	National expenditures (million pesos)	Public expenditure on education		
			Amount (million pesos)	Percentage of GNP	Percentage of national expenditure
1954/55	7 145	792	212	3.0	26.7
1959/60	11 376	...	295	2.6	—
1962/63	14 972[2]	1 845[2]	439	2.9	23.8
1964/65	18 701[2]	2 389[2]	555	3.0	23.3

Sources: (a) *Progress Report, Educational Planning in the Philippines, 1962-65*, op. cit. (b) *Reports on Educational Development, 1963-64 and 1964-65*. (c) *Central Bank of the Philippines—sixteenth Annual Report*, whose higher figures for GNP and national expenditure have been taken in preference to the lower estimates in the other documents.

... Data not available.
1. At current market prices.
2. Revised figures of the Central Bank of the Philippines.

expansion of the normal schools; improvement of personnel and instruction; establishment of a Philippine centre for teacher education; drafting a plan for selective admission and retention, not only in public schools, but also in private schools, since almost two-thirds of the output of teachers come from the latter.

Apart from objectives already referred to in the section on 'Quality in Higher Education' and a detailed listing of twenty-seven goals for the University of the Philippines to improve its facilities, the quality of its education and both the quantity and quality of its research, no over-all aims for higher education as a whole have been formulated. The reason probably is that with the overwhelming quantitative weight of the private sector, such a formulation could have significance only if prepared in conjunction with plans or objectives for this private sector and integrated with them.

While, as shown by Table 11, public expenditures for education have ranged as high as 23 to 27 per cent[1] of national government expenditures, according to the *Five-Year Integrated Socio-Economic Program for the Philippines*, no more than 8.4 per cent (237,140,000 pesos) of the total gross fixed investment was to be provided as capital outlay for education. Furthermore, most of the expenditure is allocated to elementary education, about 86 per cent in 1964/65. This leaves only 14 per cent for teacher training and other vocational schools and colleges, and next to no central allocation for general secondary education: little wonder therefore that it is so often referred to as the weakest link.[1] Recognizing this situation, Congress in 1965 legislated (Republic Act No. 4128) the grant of aid to high schools in provincial capitals and in other municipalities (excluding Manila and Quezon City). The first allocation of 4,655,000 pesos for this purpose made it possible to provide national aid at the rate of 21.21 pesos ($5.30) per enrolled student in these high schools.

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[1] (a) Not including provincial expenditures and expenditures of the State universities and colleges. (b) *Reports on Educational Developments*, 1963/64 and 1964/65, op. cit., quote higher figures of 25 to 30 per cent, because their figures for both GNP and national expenditures are lower than those given by the Central Bank of the Philippines.

These statistics show that there has been little variation in proportional public expenditure on education, although it has increased considerably in absolute terms, and that while, as a percentage of GNP, it is on the low side, it is high in relation to total national expenditure. It will therefore be possible to increase educational expenditure significantly only by raising the government revenue through increased taxation (see economics section). However, the part of GNP spent on education as a whole would increase to near 5 per cent if account were taken of private and provincial expenditures.[2] In so far as this is the case, the Philippines may well have approached its maximum capacity for expenditure on education in proportional terms and further advance may therefore ultimately depend on a better return on educational investment in terms of economic growth and an increased productivity in the existing system: it has indeed been noted that there is immense wastage in terms of both the poor quality of the output and its under-utilization.

From the view-point of comparative per student costs, the following comparative but obviously very rough (and according to the source selected, often conflicting) estimates are available as shown in Table 12.

Even allowing for a wide margin of error, it appears clear that vocational secondary education is about four times as expensive as general secondary education, that per student costs at the University of the Philippines have risen steeply in recent years—as a result of efforts to raise the quality of education and research—but that even so the range between this and per pupil expenditure at the primary level is much narrower than in other South-East Asian countries.

Finally, while the University of the Philippines is making every effort to expand its research by aiming at devoting about 20 per cent of its total budget to it, and the University of Mindanao is struggling to consolidate itself, both institutions are in 'desperate'[3] need of more financial support from the national government. Indeed, the University of the Philippines would under

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[1] This offers an interesting contrast with the First Malaysian Plan, in which 52 per cent of development expenditure on education is allotted to the secondary level.

[2] The Bureau of Private Schools has estimated private expenditure on 30,000 teacher salaries alone at 150 million pesos, to which perhaps another 65 million pesos may be added, as 30 per cent of the total expenditure, for other expenses. Provincial expenditures must in 1962/63, for secondary general alone, have amounted to at least 26 million pesos at the rate of a per student recurrent expenditure of 113 pesos.

[3] *The President's Report, 1963*, op. cit., p. 23.

TABLE 12. Per student costs by levels of education, 1959/60 and 1961/62 to 1963/64[1]

Year	Elementary				Secondary general: URAT estimates (recurrent only)		Vocational secondary and collegiate: Department of Education estimates		Higher			
	Department of Education estimates		URAT estimates (recurrent only)						URAT estimates (recurrent only)		University of the Philippines[2]	
	$	Ratio	$	Ratio	$	Ratio	$	Ratio	$	Ratio	$	Ratio
1959/60	15	1	—	—	—	—	101	6.1	—	—	131	
1961/62	21	1	21	1	28	1.3	99[3]	4.7	61[4]	—	—	—
1962/63	22	1	—	—	—	—	107	4.9	—	—	320	15.2
1963/64	—	—	—	—	—	—	—	—	—	—	500	27.3[5]

1. Ratios are taken in terms of a unit of 1 for elementary education.
2. Calculated from annual expenditures and enrolments given in the university's annual reports.
3. The URAT estimate for secondary vocational in 1961/62 was much higher: $135 per pupil.
4. Apparently calculated on the basis of public expenditure on higher education as against total higher education enrolment in private as well as public institutions!
5. In terms of the 1962/63 elementary unit.

present circumstances face a ruinous situation, had it not been able to secure well over 20 per cent of its budget from American foundations, and more recently a loan of about $6 million (the first of its kind) from the International Bank for Reconstruction and Development for growth requirements of the Los Baños College of Agriculture. Mindanao University, in its *Second Annual Report*, 1962/63, combined appeal with warning:[1] 'If the University of Mindanao is to develop into an institution of higher learning which can be a source of Filipino pride, then the national government, at this organizational stage of the university, must provide adequate support for its long-range development programme. Without that adequate government support, the university cannot grow to the stature conceived by Congress and the President of the Philippines and expected by the people. At best, it will be an institution moving without plan or sense of direction, utilizing whatever resources it can scrape and acting under spurs of the moment.'[2] This plea might well echo from the Philippines far across the South China Sea.

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1. *Second Annual Report, 1962/63*, op. cit., p. 33.
2. In these circumstances, it is particularly disturbing to learn that, at least on paper, a third university has been created and plans for a fourth are being considered.